



THE Portable Paper

**More on
the new HP
Portable Vectra**

**At last!
A memory upgrade
for the HP110—
But it isn't
easy.**

**HPDuette:
A fast serial file
transfer program for
the Portable Plus**

Publisher's Message 3

Letters

Portable Plus Free Upgrade	3
Problems Overseas	4
Condor 3 On The HP150 and Plus	5
Software For Transferring Files	42

110%

Portable Vectra Update	6
Portable, External, RAM Disk	7
Plus Updates and Upgrades	8
The Portables' Battery	8
Environment Space and PAM.ENV	40
Turn On	40
PAM and DOS Overhead	40
Diskpack Vs. Pack	40

Foundations

Getting Started with TERM	10
Getting Started with PC2622/Reflection 1	12

Profiles

The HP110 Near The North Pole	16
Boots	16
Tidbits From Paul Grimmer	17

News From Personalized Software

New Products	20
Which Memory Option to Choose	20
ROM News	22
Price Reductions	23
Fall Catalog	26
Portable Equipment Exchange	26

B Drive

MultMate 3.31: Professional Word Processor	26
MultMate vs. MSWord	28

A Drive

What is Duette?	28
Ease of Use	28
Benchmark Results	30

Special Feature:

Adding Memory To Your HP110 32

Through The Looking Glass

Start Of Something Big	36
New Products, New Decisions	37

Wizardry

First Look At The Portable Vectra	38
---	----

User Groups 44

USED HP PORTABLES AND PERIPHERALS

USED HP110 Portables
Portable Pluses
HP150s
HP9114 Disk Drives
HP-IL ThinkJets
HP-IL Converters
Video Interfaces
HP Software
HP ROMs
and more

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Portable Paper 3 year	139	139	124	114	99	88	73	63
DOS Tools And ROM Backup	50 179	40 169	36 152	32 135	28 118	26 110	24 101	22 93
Duette And ROM Backup	100 195	90 185	86 175	81 164	77 154	75 149	73 144	71 139
The Editor And ROM Backup	100 195	80 175	72 157	64 140	56 122	52 114	48 105	44 96
Norton Utilities Norton Advanced	100 150	90 129	85 122	80 114	74 107	72 103	69 99	67 96
PrinterTalk/Format110	90	60	63	56	49	45	42	38
RightWriter And ROM Backup	95 274	89 268	86 252	82 235	79 219	77 211	75 202	73 194
SHELP SideWinder + Utils Shelp+SideWinder Disks And ROM backup	55 80 230	50 70 215	45 65 200	40 61 185	35 56 171	32 54 163	30 52 156	27 49 148
Turbo Pascal And ROM Backup	70 165	65 160	63 151	61 143	59 134	58 130	57 126	56 121
T/Master	295	279	261	243	225	216	207	198
Typing Whiz And ROM Backup	50 145	40 135	36 121	32 108	28 94	26 88	24 81	22 74
Webster Speller And ROM Backup	80 259	70 249	66 233	62 217	58 201	56 193	54 185	52 177
Webster, RightWriter And ROM backups	533	517	436	407	378	363	349	334
Shelp+Format110+Editor SideWinder+PrinterTalk And SuperROM backup	474	409	368	327	286	266	245	225
WorldPort 2400 & cable	389	339	328	316	305	299	293	288
2 Megabyte RAM card 1 Meg RAM/8 Socket ROM	2995 1995	2695 1695	2627 1660	2559 1625	2491 1590	2457 1572	2423 1555	2389 1537
Used HP110's	750	750	695	650	595			

HOW TO ORDER: Use the chart above to determine the discount price. If you do not find the product you want listed on the chart, contact us for discount pricing. Enter the desired quantity on the order form in the back of this issue, or use company purchase order.

PRICES GOOD THROUGH DECEMBER 31, 1987

Our best-selling Portable software now on ROM chips

Pack your favorite programs into just a few slots in your ROM drawer!

■ **Save valuable memory space**

■ **Eliminate need for disk drive**

—Custom ROMs available too!

Now you can simultaneously free up memory space in your Portable Plus and save yourself the trouble of using a disk drive.

How? It's simple: Some of our best-selling software products are now available on ROM Backup—as many as five products per chip. Insert one or more of our ROM Backup chips in your ROM drawer and you'll never have to load those programs again.

It's the ultimate in convenience. It's much faster than running programs off a disk drive. And it leaves your computer's internal memory free for data and other programs.

ROM BACKUP: HOW IT WORKS

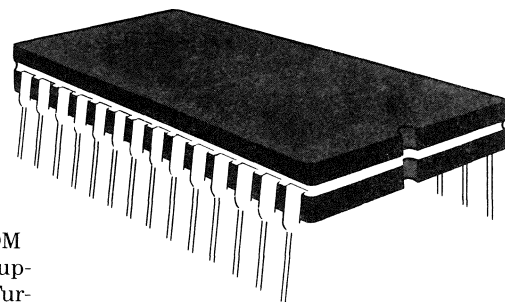
Before we could offer software on ROM to our customers, we thoroughly researched

the field, locating the most reliable sources of Roms and ROM services.

In addition, we have formed special ROM agreements with our leading software suppliers, including Borland International (Turbo Pascal), Simon & Schuster (Webster's Spelling Checker), and Southern Software (SideWinder).

For numerous legal, economic, and logistical reasons, we offer ROMs to you as a Backup Service. This means you may purchase a product on ROM provided you already own the product on disk. (If you purchased a disk product from us—Personalized Software—we have that in our records. If you purchased a product elsewhere, you must show us proof of purchase before we can sell you the ROM Backup.)

Also, it is important that you read and adhere to the licensing agreement that comes with the disk-based version of the



software you buy, because the same agreement applies to the corresponding ROM Backup. In most cases, this means you may use the software on only one computer system. Remember, you are buying a *backup* copy of your software, not a second copy.

Having to buy both the disk version and its ROM Backup is not without advantages. For one thing, many disk products include extra utilities that have to be deleted from the ROM chips in order to save space. Also, if your ROM drawer gets full, you can remove a ROM chip and still run the corresponding program off your disk drive.

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Whatever your reason: to free up valuable memory space... to minimize the need for an external disk drive... or for sheer convenience, order one or more of our best-selling programs on ROM Backup today.

To order, enter products and prices in special ROM Backup section at bottom of order form in back of this issue. ■

SOFTWARE AVAILABLE ON ROM

Here are the programs we're offering on ROM Backup. (For product details, see individual ads elsewhere in this issue.) Note that in many cases you can save space in your ROM drawer by buying two or more programs on the same chip. All our ROMs come with complete, easy-to-follow installation instructions.

IMPORTANT:

You must own (or order) the disk versions of any products you buy on ROM Backup. To order, use order form inside back cover.

Product	Notes	Size of ROM	Prices
Shelp	Includes improved version of note extraction program.	32K	\$55.
SideWinder	Does not include any of the utility programs that come with the disk-based version of SideWinder.	32K	\$55.
The Editor		64K	\$95.
★ HPDUette	Contains HP half of software.	64K	\$95.
★ HPCalculator	No disk purchase necessary.	64K	\$95.
HPrint		64K	\$95.
Shelp + SideWinder	Same versions as on 32K ROM chips (see above), plus SideWinder enhancement utility.	64K	\$95.
Sketch		64K	\$95.
Turbo Pascal	Includes RUN.COM, which can save 10K of disk space from any program you compile with Turbo.	64K	\$95.
Typing Whiz		64K	\$95.
Best of DOS Tools	Contains selected utilities from Portable Utilities Disk, Vol. 1: DOS Tools*	128K	\$129.
Super ROM The Editor Shelp SideWinder Mini PrinterTalk Format110	Mini PrinterTalk is the abbreviated version included on the PrinterTalk disk; it is functionally equivalent to PrinterTalk for most applications. Shelp and SideWinder are the same versions as on the 32K ROM chips—see above.	128K	\$149.
RightWriter		256K (Two 128K ROMs)	\$179.
Webster's Spelling Checker	Also includes two useful utilities—DiskPacks and New Mode—at no extra charge.	256K (Two 128K ROMs)	\$179.

*Utilities included in the **Best of DOS Tools** ROM Backup are as follows. For program details, see Portable Utilities ad in this issue.

PACK	VDL	MOVE	WHEREIS	PRNCONF	TRIM	DIRS
CLEAN	TY	TJETA	CHANGE	SDL	FGREP	SQPC
COPYNEW	ARCE	RENDIR	ASK	MOVEALL	LABEL	FDUMP
DUMP	TMA	OFF	TEE	WAIT	BEEP	SM
DIRALL	CYPHER	FCOPY	ARC520	FDAT	XCOPY	

Note: ARC520 is shareware; the author normally requests a \$35 contribution. However, you do not need to send any money. We've already paid your user fee.

★ =NEW

ABOUT ROMS

A ROM ("Read-Only Memory") is a microelectronic chip that stores programs or other data. Once information is "burned in" to a ROM, it cannot be altered.

A different form of ROM, called an EPROM, can be altered once information is burned in. (EPROM stands for Erasable Programmable Read-Only Memory.)

Although blank ROMs are in general less expensive than blank EPROMs, the initial burn-in costs for ROMs are much higher. ROMs also require a much longer lead time to produce than EPROMs. Currently, EPROMs that can be run on the HP Portables come in 16K, 32K, and 64K sizes. ROMs are 128K.

We use EPROMs for our 32K and 64K backup chips, and ROMs for our 128K packages.

PUBLISHER'S MESSAGE



Hal Goldstein

This issue completes our second full year of *The Portable Paper*. We have received many kind words from you—and we appreciate them greatly—but notice that this issue contains about 40 reader contributions. This mutual sharing has been the basis of our success: *The Portable Paper* and its publisher, Personalized Software, has become the focal point for sharing the knowledge and experience of Portable users.

Also the origin of most of the Portable products we sell has come about from your insights, contributions, and needs.

The entire Personalized Software staff (which has grown from 2 to 8 this past year) feels that you are a pleasure to work with. You are most patient and understanding with us, even when you have had to wait months for a back-ordered product. I believe that whatever natural selection process has taken place, HP Portable users are a special group of people.

Special thanks once again go to Ed Keefe, Cliff

Looyenga, and David Hughes, who have given their own time to contribute to *The Portable Paper*. Their writings may be labors of love, but faced with our deadlines, writing for us at times becomes just plain labor. I appreciate the intelligence and enthusiasm they bring to *The Portable Paper*.

Starting next issue we will expand *The Portable Paper* to include the HP Portable Vectra. I think you will find that expanding our discussions to this new IBM-compatible machine will enrich the understanding and appreciation of your own machine and help you better understand the whole portable and IBM compatible industry. At the same time we will continue to improve our coverage of the HP110 and Portable Plus.

Included with your issue is a questionnaire. Please fill it out and add any comments how we can better serve you. We have carved out a very small market niche, and we can continue to be successful only if you find our products and services of value. Please mail your completed questionnaire in the postage paid envelope.

Enjoy the holidays.

Letters

How Good Is The Plus

Thanks for putting out such a helpful, informative and readable Paper—it has greatly improved the usefulness of my 110 for me.

I am a tour manager for various rock bands and constantly use my 110 on the road for electronic mail, tour budgets, alphabetization of guest lists, and, along with my ThinkJet, printing itinerary updates and press schedules for the bands. The ruggedness and portability of the 110 are, for me, far superior to anything else on the market.

Which leads me to my question: I have read numerous letters and articles comparing the 110 and Portable Plus in terms of screen and memory size, availability of software and ease of expandability. But no portable is worth a byte unless it can take the stress of the road. Before I upgrade to a Plus, I want to know how well-built it is, how durable. I have heard from some dealers that, in the Plus, some shortcuts were taken, that multi-pin connectors tend to corrode, and that wiring is a little sloppy. What is the Plus repair rate and the "satisfaction factor" of Plus owners among your readership?

I would like to include another modem among those that have proved to work with the 110—the Migent 1200 baud pocket modem. This is a very compact, lightweight, battery-operated unit

that comes with a connecting cable (you'll need to buy a 9-pin male-to-male adaptor) and AC adaptor. It has auto-dial and memory features, but I haven't been able (or needed) to use them. Contact: MIGENT, Inc., 865 Tahoe Bl., P.O. Box 6062, Incline Village, NV 89450 (702) 832-3700.

Are there any suggestions for a modem suitable for use in the U.K. and on the European continent? How about for Australia?

Ira Seigel, Santa Monica, CA

[Hal—Some Portable Plus customers had problems with the early Portable Pluses. However, HP service centers normally fix those problems at no charge (see David Speltz's letter next).]

Until the screen update on the Plus, I preferred the HP110. However, now there is no question that the Plus is a superior machine because of memory potential, screen size, and the capacity to put in ROMs according to your needs. The machine is just as rugged as the HP110. User satisfaction with the physical machine itself is high and the Plus repair rate is low. In fact, the Portable Plus repairs more easily and cheaply than the HP110 since the Plus is more modular and considerably easier to take apart.]

Portable Plus Free Upgrade

Here is a good reason to own a Hewlett Packard Portable: I have had trouble with lockups and have had modem difficulty with my 3 year old Portable PLUS. At no

charge, Corvallis (1) replaced the modem with Rev B, (2) upgraded the ROM to BBBBBB, (3) upgraded MemoMaker/Time Manager to Rev 2, (4) replaced the tin connectors to the motherboard with gold. Big Blue doesn't do that for us little guys! On another note, I am an amateur radio operator. I use the Plus (and used the 110 before) in amateur radio communications. I have found IBM amateur radio software that works on the Plus. Would you or any of your readers like information on this application?

I have been reading some of the older copies of *The Portable Paper*, and it astounds me that on every reading I pick up something new, or I develop an idea that hadn't arisen before. In reading Vol. 1 No. 2 tonight regarding the disadvantages of using PACK with subdirectories, I think I can explain some of the data loss problems I have encountered. But I believe there is an alternative. I routinely back up using the XCOPY program you provided on the 1987 Subscriber's disk. After reformatting the Edisc and reloading, access time seems to have been enhanced considerably. I just wonder if that routine is a roundabout way of Packing when one has subdirectories?

I would like to purchase the RAM/ROM drawer. Here are some questions that I need answered: How do you handle the exchange of the ROM drawer? I do not want to take it out until the new one can be installed. I am so impressed with the EDITOR that I really do not need

the MS Word ROM I have. I also have an IBM with Wordstar and send my EDITOR files to that if I need fancy printing or editing. Can you install SuperROM and Best of DOS Tools in my new RAM/ROM drawer?

David Speltz, CompuServe ID [76054,1022], Shaker Heights, OH [Hal—If any reader is having similar problems with their Plus, see your local authorized HP service center.]

Copying or XCopying files onto a blank disk is indeed a way of packing a disk.

We will be happy to install ROM chips in any RAM/ROM drawer, ROM drawer, or Portable Plus we sell. In fact, for those readers who would like to purchase ROM chips from us but do not want to install them themselves, we can do it. (See details in "What's New From Personalized Software" column.)]

Problems Overseas

I received at last your parcel with past issues and all the software I asked for. Although you did send it by air mail (for an expensive \$50), it remained in customs for more than one month. On the other hand, the Turbo Pascal ROM arrived separately earlier, unfiltered by customs due to small value. I would suggest that for big parcels, you should send by regular mail to keep postage fees low. Obviously, from now on I will order small amounts at a time to avoid taxes.

I found a lot of pleasure in the back issues of *The Portable Paper*, discovering more on my Portable Plus. However, I was very disappointed by the inability of Shelp and Typing Whiz to work properly with a French keyboard. Quick typing on a QWERTY keyboard is useless for me. Shelp is even more incompatible, as exporting results from the calculator converts the figures into the corresponding accentuated letters of the French keyboard (34567890 becomes ë0(\$elca, which is hard to decipher), and taking notes causes similar problems.

The SKETCH software works correctly, except for the + and—keys, which are mapped to the QWERTY keyboard too. This can be overcome by annotating the adequate keys, but this is a general software development problem you should take into account. One of the bonuses of buying HP is the care that HP takes of this kind of details for its foreign customers. You should advertise the products with restrictions, and define a policy for your software developers.

Alain Girard, France

[Hal—I am sorry for the shipping and software problems caused to our non-U.S. customers. If we ship ordinary mail, our products may take three or four months to arrive. Each country seems to have its own characteristics as to what gets slowed down or taxed in customs. France is one of the worst. Delays in Canada and England have been caused by postal and customs employee slowdowns. On the other hand, many of

our non-U.S. customers have been pleased with how quick and fair our service has been.

We charge whatever the post office charges us for shipping, even though it takes us considerably more time to fill customs forms and process non-U.S. orders. UPS delivery is also possible, but is more time consuming for us and expensive, although faster than airmail. If you give us shipping instructions, we'll do our best to follow them. Alternately, European customers can order our products from David Birch of Softword in England (see upper right corner of Order Form in back of the issue).

Unfortunately, we do not have the resources (nor usually access to the source code of the program itself) to customize our products to each European keyboard. We will try to identify what software works to what degree and publish the results. Please keep us informed.]

Plus In China To Study Dinosaurs

I want to thank you for *The Portable Paper* and all the product support. I am a new subscriber and have digested all the issues. I learned more from the 10 issues I have read than from all the HP Communicators and manuals (well maybe not the manuals).

I bought a Plus to take to China for a three-month research trip on dinosaurs and primitive mammals. What I took with me was an HP 220v charger, a small 220v-110v transformer, and the set of 4 converter plugs by Franzen of Canada to adapt the charger to various sockets. (I got my converter plugs at a luggage shop in St. Paul, but they are often advertised in airline sales magazines.) It took care of all my needs in Beijing, Shanghai, Xian, Guangzhou and Nanxiong. Didn't lose a byte on the whole trip despite at least 5 power outages and lord knows how many brown outs. I now use it as my regular computer.

I do have one small problem with the thing. As a result of a misspent youth in high power rifle competition, I am 80% deaf above 2 kilohertz. I can't hear the beeps! Is there a way of permanently lowering the frequency of the beep in the Plus and the 110 to a frequency I can hear?

I recently ordered Sketch and a mouse and driver. Sketch is here (and fun), but the mouse and driver are not. I am really looking forward to them. I did find some interesting stuff looking through catalogs. Tandy/Radio Shack has a 9 pin serial mouse available Oct. 30th at \$50; See p. 12 of their new computer catalog. They also have an external 3 1/2" drive, 5 1/8 by 6 1/4 by 2 1/8 inches at \$180 for the drive and \$75 for the IBM software. The drive is by Purple Computing; the ad says "120,400" bytes, which must be a misprint. This might be the replacement for the 9114 drive that we have all wished for (p. 84 of Jameco's 1987 catalog. 1355 Shoreway Rd, Belmont CA 94002,

THE PORTABLE PAPER

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415-592-8097). If you would check this out, I suspect you could add it to your list of products.

Bob Sloan, North Oaks, MN

[Hal—I doubt seriously that the disk drive will work. To get the mouse to work would require another development effort. If any reader ever gets a mechanical disk drive other than the HP9114 to work with either Portable, be sure to drop us a note.]

ThinkJet Address Labels

What is the best way to do address labels with the ThinkJet and the HP 110?

Thomas C. Riddle, New York

[Hal—On the HP110 you can use Lotus to create a macro to generate mailing labels. (That is what I did for the first two issues of The Portable Paper.) Several of our products listed in the back of this issue might help. 101 Macros For Lotus 1-2-3 has an addressing macro. You could also use Condor Jr on the HP110 (Condor 3 on the Plus) to store and create mailing labels. A box of HP ThinkJet mailing labels part number 51630L can be ordered for \$18.95 from HP, your dealer, or us.]

How Many Portables Has HP Sold?

Are you or your readers aware of the number of HP110 units sold before the computer was discontinued?

Claude A. Cartee, Framingham, MA

[Hal—HP is very tight-lipped about sales figures. My educated guess is that between 20,000 and 30,000 HP110's and about the same number of Portable Pluses have been sold. HP, by going more mainstream with The Portable Vectra, is hoping for a much stronger presence in the Portable marketplace. At the same time, by lowering the price of Pluses, coupled with increased exposure, they hope to boost Plus sales.]

Condor 3 On The HP 150 and Portable Plus

I own and use both the Hewlett Packard 150B desktop computer and the Hewlett Packard Portable Plus. Before I purchased the Portable Plus, I used the 150B for word processing, for analysis of financial information (using Lotus), and for database management. The database used with the HP150B is Condor Corporation.

Recently, Condor 3 was upgraded to version 2.11.11. This program runs on the HP 150 using the IBM PC emulator. This version also runs on the Hewlett Packard Portable Plus without any modification. This program runs in the HP console mode if the function keys are not used, and runs on the Portable Plus in the alternate mode if you wish to use the function keys.

Obviously, those users of the Portable Plus and the HP 150 can benefit from the versatility of using the same database, program disks, and data on both computers. Condor 3 is an easy relational database to use. I am very pleased with its use.

If a backup for this program can be burned onto either ROM or EPROM chips, please advise of the cost.

Allen A. Lefkovitz, Chicago, IL

[Version 2.11.11 of Condor III is available on 3-1/2" disk from us for \$495, \$379 for subscribers. Condor Jr is available for HP110 users for \$99.95, \$89.95 to subscribers.]

Try FORTH

Here is my check for renewal. The reason for this letter is to salve my conscience. I should have said something long ago

about the value of the HP110 for programming in FORTH.

FORTH is the best language there is. It can do absolutely everything: graphics, higher-math, instrument recording and control, even word-processing. Its only major disadvantage is that it is fragile—you can blow yourself out of the water. This fragility is inescapable because the user has complete management of the computer's memory—he is bound to mismanage it frequently, with loss of everything in memory and need for a cold reboot. The 110 with DOS is ideal because the reboot and reload takes only a few seconds as against two or three minutes plus disk changes on an XT. The memory loss is trivial in either case because FORTH programming is always written to disk before it is tested.

My FORTH software was adapted to the 110 by LMI, POB 10430, Marina del Rey, CA 90295. I also have an XT with an 8087 math chip, a graphics card, and an HPIL card, but I do all my programming on the 110. Once the program is running, it is easy to modify it for public-domain FORTH on the XT. Floating-point math runs about nine times faster on the XT but this doesn't matter during development. If I could only keep one of the machines it would be the 110.

Microsoft Macro-assembler also runs well on the 110, although some of the interrupts do not match IBM's. Cliff Looyenga should give us a run-down on these. FORTH has its own assembler, anyway, and the LMI FORTH Assembler fits the 110.

I have Basic and Turbo-Pascal for the 110 but never use them any more. In fact, I am busy translating old programs into FORTH so that I won't even have to think about other languages. You might want to let your readers know about this.

Charles K. Stidd, San Diego, CA

[Hal—I contacted LMI labs, who said they have just taken the HP110 version and the HP150 version off their price list. However, they still have some in stock. The Portable Plus can run the HP110 version with no problem. However, the Forth editor assumes the screen is 16 lines rather than 25 lines. The cost of LMI Forth is \$150. If subscribers want to order LMI Forth through us then the cost becomes \$139. LMI can be contacted at (213) 306-7412.]

IBM Clone as 5 1/4" Peripheral to Portable

I found your note suggesting the use of an IBM PC compatible to access a 5 1/4" disk drive very interesting (May/June, 1987, p. 34). I have thought about doing the same thing, given the very high price of the Steinmetz and Brown drive. This would give me easier access to other kinds of software and printers available here in Brazil.

Would I need any extra software for my Portable Plus to make the link? I would like to see very detailed, simple instructions on how to link up these two computers. What kind of software would the IBM PC-compatible need?

I would also like to know if there is any way I can use the expanded or expanded-compressed print fonts with my Microsoft word processor and ThinkJet Printer.

Why doesn't HP advertise the Portable Plus more? It is such a great piece of equipment, but most of my friends from international agencies and on the consulting circuit have never heard about it. HP seems to be trying to keep it a secret!

It would also be helpful for overseas readers if you listed estimated prices of some HP hardware; it isn't always easy for us to dial an HP representative.

David Michael Vetter, Brazil

[Hal—The HP-IL Link card for the IBM PC (HP82973A, \$150) or HP150 (HP45643A, \$175) comes with software for the PC or HP150. HPLink software is built into the Portables. Just type hplink from PAM or DOS and the Portable becomes a peripheral to another Portable, HP150, or IBM PC. I'm sure it isn't hard to use ThinkJet fonts from MS Word, but, unfortunately, I am not an MS WORD user. For hints you might see the Foundations column in this issue. Finally, you should find the pricing of many HP Portable products in our Portable Equipment Exchange brochure that accompanies this issue of The Portable Paper.]

Another Letter Quality Printer

This letter is being typed on a Panasonic RK-T34 typewriter with an RP-K100 interface. I thought you might like to know of another quality printer available for the HP110.

John B. Jacob, Charlotte, NC

In The Boonies

I can't tell you how thrilled I was to receive my first copy of *The Portable Paper* today. I have literally read every line. In addition to all of the really useful information, it has such a friendly, helpful tone, perfect for a self-taught novice such as I.

For the past year and a half, I have been an extremely frustrated HP110 user here in the boonies. I have had absolutely NO customer service, catalogues etc., and any time I have needed help, I have had to make as many as 10 very long distance calls before I found ANYONE who was willing or able to help. Up until now, my nearest supplier has been in Guatemala, and this has meant a six-month wait, extremely high costs, a plane trip, hotels and the inevitable shopping spree!!

So, yes, I certainly do want to subscribe. Attached is my order form.

A. J. MacGregor, Tegucigalpa, Honduras

HP Engineer On ThinkJet Paper

I am a Quality Engineer at Hewlett-Packard Vancouver, Washington Division. I read your article about HP and ThinkJet/QuietJet paper some weeks ago by Sergio Biguzzi, and it has taken me this long to get all of the facts pertaining to

(continued on page 42)

110%

Making More of Your HP Portable

by Hal Goldstein

Portable Vectra Update

For a first look at the Vectra, see the Wizardry column, where our Wizard, Cliff Looyenga, describes his initial experience using the Portable Vectra.

WHY THE SLOWER PROCESSOR

Although HP has its 8086 IBM XT compatible microprocessor running at maximum speed, many readers have asked why HP did not choose a faster AT-like 80286 microprocessor. The answer is that HP wanted to provide a true battery-powered portable—one that could last up to ten hours without recharging. That kind of battery life has not been possible for 80286-based laptops.

Several weeks after HP announced the release of the Portable Vectra, Harris Corporation announced a CMOS version of Intel's 80286 that can power a unit up to six hours on battery. We can expect to see battery-powered portables with the Harris microprocessors at the beginning of 1988.

THE PORTABLE VECTRA'S UNIQUENESS

HP sees the Portable Vectra filling a need in the fast-expanding portable marketplace. The Portable Vectra is for those who desire the performance and the physical characteristics of a desktop computer, but still want more size and weight portability than offered by transportables such as the Compaq line.

There are several features that we did not discuss or emphasize in our discussion last issue of the Portable Vectra. First of all, the HP Portable Vectra comes standard with a built-in handle; however, a carrying case is optional. The Portable Vectra has a rugged clamshell design (it folds up like a clam), with forward-facing disk drives. It most closely parallels the new IBM PS/2 model 30 in performance.

One nice feature is that it contains an alarm to automatically power on, and power off the system. That way, for example, you can easily program your Vectra to transfer files or pick up your electronic mail in the middle of the night. The alarm is triggered by the built-in real-time clock.

There is a slot for an 8087 coprocessor on the computer's main (mother) board, but such a chip for the Portable Vectra is not yet available. HP is probably waiting for an (CMOS) 8087 chip that won't drain the battery as much as the current NMOS chips.

The Portable Vectra comes with a special program called **for150** that will format disks readable by the HP110 and HP150. Portable Plus and Vectra disks are interchangeable. The Portable Vectra can read any HP Portable or HP150 disk. The HP110 cannot read the regular Portable Vectra formatted disks.

The twelve function keys of the Portable Vectra's excellent keyboard are located on top of the keyboard in a

similar style to the current HP Portables.

PAM looked a little different and perhaps more convenient for DOS users. The DOS prompt **A>** appears at the top of the screen followed by the PAM applications. PAM already knows about most of the top-selling software packages ranging from Lotus 1-2-3 to WordPerfect to ThinkTank. Therefore, setting up PAM is usually just a matter of pointing the cursor to the names of these popular products—no extra file (like **pam.mnu**) has to be created.

HP promises a 6-10 hour battery life. Although it is a different battery, like the original Portables, the battery is lead acid. Therefore, it should be kept as fully charged as possible. The battery gauge indicates charge. Unlike the battery indicator in the original Portables, which runs a software simulation of battery usage, the Portable Vectra gauge detects the actual battery discharge level. It takes a maximum of 12 hours to charge the Portable Vectra battery 100%.

The Portable Vectra cannot run HP110 or Portable Plus software that was specifically customized to the Portables. It runs all IBM PC software.

However, users comfortable with such programs as MemoMaker, Executive Card Manager, and, of course, Lotus 1-2-3, will have no problem making the transition to The Portable Vectra. HP sells Portable Vectra versions of that software.

Finally, many readers have asked if the Portable Vectra contains an electronic disk similar to the HP Portables. Unfortunately, no. However, software is provided to create a temporary Edisc out of available memory. That Edisc goes away when the machine is turned off.

My discussion with HP Corvallis indicates that an optional non-volatile Edisc could be designed to fit in one of the four expansion slots. Similarly, a board to take ROMs could be designed for one of those slots. My guess is that HP will design such boards if the demand is high or if the Vectra sells well.

HOW ARE WE GOING TO SUPPORT THE PORTABLE VECTRA?

Starting next issue, *The Portable Paper* will expand its coverage to include the new Portable Vectra. We will continue full coverage of the original HP Portables, and also add articles, tips, tricks, tutorials, and product reviews relating to the Portable Vectra. As in the case of the HP110 and Portable Plus, there will be much overlap; in other words, many of the articles will apply to all three machines. *The Portable Paper* will be a richer publication.

We will also continue our policy of creating, identifying, and supplying products for HP Portables. On the Vectra front, we will sell the best software available for the machine. Perhaps more importantly, we will be working with and encouraging third party vendors to fill those four slots available to Portable Vectra users with useful products.

duette

*it transfers files both ways
between your HP Portable
and your desktop computer
without an HP-IL card!*



An HP-IL card inside your IBM PC or compatible computer lets you transfer files to and from your HP portable computer.

It's a good solution to the data transfer problem, *provided* you only use one desktop computer. But if you ever need to transfer data between your Portable and someone else's desktop computer, you're stuck—or at least you were until now.

Because now there's a way to do it with software.

It's a program called Duette. Together with a special serial connecting cable that it comes with, Duette is all you need to transfer files at high speed both ways between your Portable and any IBM PC compatible desktop.

Duette performs complete error checking during the transfer process to ensure data integrity. It handles multiple-file transfers, subdirectory transfers, and DOS "wild card"

usage. It lets you use DOS commands such as type, list, rename, and erase without having to exit the program. And it transfers data *faster* than you can with an HP-IL card.

Duette is easy to use too. Simple menus and easy-to-understand help screens are available at all times.

For true convenience in file transfer to and from your Portable Plus or Portable Vectra, order Duette today.

Duette 2.0 with cable (for Portable Vectra) \$59.95
\$56.95 for Portable Paper subscribers.

HPDuette with cable (for Portable Plus) ..\$99.95
\$89.95 for Portable Paper subscribers.

	Duette 2.0	HPDuette
RECOMMENDED FOR:		
HP110 Portable		
Portable Plus		•
Portable Vectra	•	
HP150		
IBM PC and compat	•	•

60-DAY MONEY BACK GUARANTEE

See order form for details.

TO ORDER

Use postage-paid order form inside back cover
or send check or credit card information
(#, exp. date, signature) to:

Personalized Software
P.O. Box 869, Fairfield, IA 52556 515/472-6330

duette comes with a serial cable and two disks; you load one disk into your portable computer and the other into the desktop. There are two models to choose from:

Duette Version 2.0 is for the HP Portable Vectra. It transfers data at 115,200 baud as well as at lower baud rates. To use Duette 2.0, you'll need to install an HP serial adapter card (available from Hewlett-Packard) in your Portable Vectra. You connect this card to the serial port on your desktop computer using the serial cable that comes with the program.

HPDuette is for the Portable Plus. It transfers data at 57,600 baud. To use HPDuette, you connect the 9-pin serial port on your Portable Plus to the serial port on your desktop computer using the serial cable that comes with the program.

We have already instigated the creation of two valuable Portable Vectra products, which we hope to officially announce next issue. The first is a portable hard disk for the Portable Vectra. A \$50 bus extender card is being designed to fit in one of the Vectra slots. 10 Megabyte to 96 Megabyte rugged portable hard disks easily connect to the card. That hard disk can be moved from Portable Vectra to Portable Vectra to IBM Compatible desktop computer, as long as the computer has this inexpensive bus extender card. Therefore, this portable hard disk can be used as a hard disk, as a backup medium, or as a way to transfer large amounts of data from one machine to another.

The other product being developed now is the Portable Vectra equivalent to the mobile recharger that we already sell for the original HP Portables. Vectra users will be able to run or charge their Portable Vectra battery off the cigarette lighter of a car.

We have many other ideas and are very much interested in yours. Over 80 percent of the products we sell for the HP Portables came about directly from the knowledge and experience of our readership.

Lightweight, Portable, External RAM Disk

By Rich Burmeister

Corvallis Micro Technology (CMT) makes small, lightweight, RAM disks which may be of interest to HP110 and Portable Plus owners who want a truly portable alternative to the HP9114 disk drive for program and data storage. The RAM disk is like the 9114 in that it can be plugged into any Portable for file transfer; it is like the Edisc in that files are transferred directly via the HP-IL loop, rather than through removable disks.

Some notable features of the CMT RAM disks are:

- 128, 256, or 512 Kilobyte capacity.
- Dust-proof; usable in severe environments.
- Very low power consumption (9 volt battery).
- Completely solid-state.

The CMT RAM disks were designed primarily for use with the HP-41, HP-71, and HP-75. With these machines, the CMT RAM disk can operate in two modes. In "single" mode, the RAM disk appears as one device on the HP-IL loop. In "multiple" mode, the RAM disk appears as multiple devices, each device having 128K bytes. For example, the 512K byte RAM disk appears as four external disk drives (normally, C thru F).

With the Portables, unfortunately, the RAM disk can only operate in multiple mode. Therefore, a 512K CMT RAM disk would look to the Portables as four 128K disks. For this reason, we think that a 1 megabyte memory board is a better alternative for Portable Plus users (much more memory at a slightly higher price). Since the HP110 doesn't have plug-in memory drawers, the RAM disk provides a reasonable means to expand its memory.

CMT was unable to explain why the RAM disks cannot work in single mode on the Portables. Their technical support staff was more familiar with HP-41s and HP-75s.

One minor problem with the CMT RAM disks is their speed: programs load at about the same speed as they would from a HP9114.

Another problem with the CMT RAM disks is their documentation. It is too technical for many users and assumes familiarity with HP-IL and RS-232 operations. Fortunately, installing and using the RAM disks is very easy. Basically, you just have to install the batteries, plug it in, format the new disks, tell PAM how many new disks you

have (with System Config), and you're in business.

Given the limitations of the CMT RAM disks, we consider them a viable program and data storage/transfer medium for HP110 owners but probably not for Portable Plus owners.

We will offer them for a limited time for the prices given below.

If there is sufficient interest, we will add them to our regular line of products.

Device	Description	Retail	Subscriber
CMT-RD128	128K Byte HPIL RAM Disk	\$ 345	\$ 329
CMT-RD256	256K Byte HPIL RAM Disk	\$ 495	\$ 469
CMT-RD512	512K Byte HPIL RAM Disk	\$ 795	\$ 745

RS-232 INTERFACE

One very interesting option available with the CMT RAM disks is an HP-IL/RS-232 interface. This device emulates HP's 82164A HP-IL/RS-232 interface and contains the RAM disk. Two types of cables are available: DTE (Data Terminal Equipment) and DCE (Data Communications Equipment). Typically, the DTE cable is used for communications with printers, plotters, and modems.

Some notable features of the HP-IL/RS-232 interface are:

- Programmable settings (baud rate, stop bits, word length, parity, etc.).
- Settings retained when power off.
- Male 9 pin DB connector (same as IBM AT serial port).

Here are prices for the CMT RAM Disks with the RS-232 interface.

Device	Description	Retail	Subscriber
CMT-RD128-01	128K HPIL/RS-232RAM Disk	\$ 445	\$ 419
CMT-RD256-01	256K HPIL/RS-232 RAM Disk	\$ 595	\$ 535
CMT-RD512-01	512K HPIL/RS-232 RAM Disk	\$ 895	\$ 799

Corvallis MicroTechnology can be contacted directly at: Corvallis MicroTechnology, Inc. 895 N.W. Grant Ave. Corvallis, OR 97330, (503) 752-5456.

Updates and Upgrades for the Portable Plus LOTUS 1-2-3 VERSION 2.01

Send \$195 plus tax and the glossy front cover from your 1-2-3 manual to DMK*, and order 45539-64001. Version 2.01 consists of three ROMs (the third is optional) and contains help messages.

MEMOMAKER A.02.00/TIME MANAGEMENT A.03.CD

Send the back cover of your Time Management manual to DMK*, order 45504-64002, \$60 plus tax. The new ROM uses the label "Time Management" in PAM instead of "Time Manager."

Note—The original MemoMaker has serious bugs. Before updating, you might check with your local service center, as a service note may allow for a free update.

REFLECTION 1 (from PC 2622)

Send PC 2622 supplemental disk to DMK*, order 82861-64002, \$135 plus tax.

Note—It is my understanding that there is little reason for U.S. PC2622 owners to upgrade.

GW BASIC (adds Portable Plus version)

Send the master disk to DMK*, order 45450-63002, \$42 plus tax.

REV BBBBBB SYSTEM ROMS

ROM upgrades must be done at the Field Repair Center. The charge is \$300. Press **CTRL Shift Break** to see the ROM ID displayed briefly.

Note—If your Plus hangs up or otherwise acts strangely, again check with your authorized HP service center—they may upgrade you at no charge.

REV B INTERNAL US MODEM

Field Repair Center decides if they'll charge for the update or not according to guidelines on service note.

DISPLAY UPGRADE

From grey to green screen. 45711-60955, \$350. Call Corvallis Repair Center at 800-782-8884 to schedule upgrade.

MEMORY UPGRADE

From 128K or 256K to 512K internal memory. 45711-60956, \$1100. Call Corvallis Repair Center at 800-782-8884 to schedule upgrade.

GOLD CONNECTORS BETWEEN TWO MAIN CIRCUIT BOARDS

Units with serial numbers before 2635A00000 have tin-plated connectors unless they've been repaired or upgraded since mid-August of 1986. These connectors will eventually corrode, leading to intermittent unpredictable behavior and loss of files. Take the unit to a Field Repair Center for replacement of the connectors (covered under extended warranty) or return it to Corvallis for one of the upgrades mentioned above, and it will be done automatically.

PORTABLE PLUS TECHNICAL REFERENCE MANUAL UPDATE

Included in all Technical Reference Manuals shipped after 1986. 45559U, \$49, or buy the whole manual 45559K for \$100.

* DMK = HP Direct Marketing Division, PO Box 60008, Sunnyvale, CA 94088 (800) 538-8787. Attention: Software Updates. Note: HP entities should buy the corresponding product instead of the upgrade, as the cost will be lower. Outside the US, call your local HP sales office for information.

The Portables' Battery

By Bill Hassell

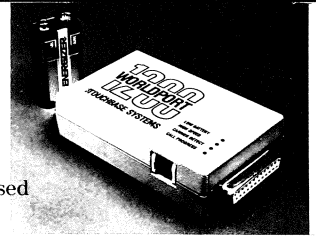
PROBLEMS WITH SEALED LEAD-ACID BATTERIES

Remember the nifty battery indicator that keeps you from losing memory? Ever seen LOW BATTERY and yet the charge indicator is almost 100%? The LOW BATTERY indicator is very important...it shows the actual battery voltage and is therefore accurate. However, there are a couple of problems with batteries. The first was a manufacturing change that increased the battery charging rate inside the Portable. (The service note is 45711-07 for serial numbers below 2537Axxxxxx.)

The second is a characteristic of sealed, lead-acid Gates batteries. Once the battery charge goes below about 35%, chemical changes begin to occur that cannot be reversed with normal charging. The longer a battery is left below 35%, the more changes occur. These changes reduce the capacity of the battery and therefore shorten the effective life of the battery. This appears as a low-

2400 baud portable modem for your HP Portable

The 4"×2"×1" WorldPort 2400 costs less than HP's internal modems, is faster, and can be used with more than one computer.



Weighs only 6½ ounces!

If you do data communications with an HP Portable or Portable Plus, you've probably found the internal 300- or 1200-baud modem to be too slow. Until now, the only solution was to buy a bulky external modem and lug it around wherever you go.

A better solution is the Worldport 2400. It measures a trim 4"×2"×1", it's rugged, it weighs only 6½ ounces including the battery, and it sends and receives at 300, 1200, and 2400 baud.

A MYRIAD OF FEATURES

The Worldport 2400 has a wealth of features you would expect to find in a desktop modem several times its size.

EXTRA BONUS FOR USERS OF THE IBM PC AND NEW HP PORTABLE VECTRA

Included with the WorldPort 2400 at no charge is the acclaimed communications and remote control software package, Carbon Copy PLUS (retail value: \$195). The program also comes free with the WorldPort1200—WorldPort2400 Upgrade Kit. (Carbon Copy PLUS will not run on the HP110 or Portable Plus, but both WorldPort modems will run with HP's communications software, namely the Terminal program for the HP110, and TERM and Reflection for the Portable Plus.)

For example, the WorldPort 2400 has auto-dial, auto-answer, and both pulse and tone operation. It comes with a standard modular phone plug for connecting with the telephone line. It offers non-volatile storage of up to 20 commands. And it is fully compatible with the industry-standard Hayes AT Command Set, and with the HP110's Terminal software and the Portable Plus's TERM and Reflection software.

Since a modular plug is not always available, the WorldPort 2400 also has a built-in interface for an acoustic coupler. (The coupler, an optional extra, runs at 300 and 1200 baud.) The unit is compatible with both the internationally accepted CCITT communications standards and the Bell communications standards recognized in the U.S..

The WorldPort 2400 uses a standard 9-volt transistor radio battery (it's included with the unit). A fresh battery will keep the WorldPort humming for 8-10 hours. You can extend battery life by operating the unit from a wall outlet whenever possible, using the optional AC adapter. The WorldPort 2400 draws no power from your Portable's battery.

DOUBLE GUARANTEE

In addition to our standard 60-day money-back guarantee, the

WorldPort 2400 comes with a 2-year manufacturer's warranty covering defects in materials and workmanship.

The WorldPort 2400 offers portability, reliability, well-designed features, and ease of use. Order yours, risk-free, today.

	Retail Price	Subscriber Price
WorldPort 2400 modem (with Carbon Copy PLUS software)	\$359.00	\$319.00
WorldPort 1200 modem (without software)	199.00	179.00
Cable to connect modem to HP Portables	30.00	20.00
Acoustic coupler (300/1200 baud)	59.95	56.95
9-volt AC adapter	6.95	6.95
Upgrade kit: WorldPort1200—WorldPort2400 (includes Carbon Copy PLUS software)	199.00	179.00

60-DAY MONEY BACK GUARANTEE

See order form for details.

TO ORDER

Use postage-paid order form inside back cover or send check or credit card information (#, exp. date, signature) to:
Personalized Software
 P.O. Box 869, Fairfield, IA 52556 515 472-6330

WorldPort 2400 and WorldPort 1200 are trademarks of Touchbase Systems, Inc. Hayes is a trademark of Hayes Microcomputer Products, Inc. Carbon Copy PLUS is a trademark of Meridian Technology, Inc.

Copyright 1987 Personalized Software

battery indication with the charge indicator reading 80% to 100%.

This chemical change is called sulfation and is common to all lead acid batteries, including car batteries. The difference is that some chemistry can be done to reduce the non-reversible effects in sealed batteries. For example, the Panasonic battery in the 9114 disk drives has a much better chemistry in this regard.

NEW BATTERIES AVAILABLE

Corvallis has decided to switch battery vendors and in the next few months will be publishing a service note to handle battery replacement. I don't recommend trying to reform the Gates battery unless you are familiar with lead-acid batteries and have skills needed to keep the charge rates under control. The new batteries will be available in the fall time frame (delays due to the quantity needed by HP), so for the time being, keep your portable charged as high as possible...above 40% at all times and definitely above 35% if at all possible.

Corvallis has also suggested a procedure for replacing batteries which avoids memory loss—although they always recommend a full backup before swapping batteries. The procedure is to plug in the charger first, turn the unit off from the PAM screen (f8), and then replace the battery with the charger left plugged in. This usually retains the memory with no problems.

The new battery number is 45711-60990 and should be available by now.

TECHNICAL INFO ABOUT YOUR BATTERY

A number of technical types always want to know internal stuff, so here are some details on battery voltages and current drain:

..With the charger plugged in, the battery will measure about 7.6 volts and then change to about 7.2 to 7.4 after a few hours. If the battery has been heavily discharged, its charger may not reach these voltages for several hours.

..Low Battery! indicator will be displayed when the battery reaches 5.8 volts. This may take as long as 8 minutes to show up especially when using a battery substitute such as an external power supply.

..Low battery shutdown (comatose mode) occurs at 5.6 volts. Loss of memory will occur will occur below about 5 volts.

..The Portable's sleep current is only 220 uA (0.22 mA) and is difficult to measure if the meter has more than a couple of ohms resistance. Use a precision 1 ohm resistor in series with the battery's metal plate (the brass stud isn't always connected) and the computer's power strap. This is not recommended except for trained technicians, since the battery is quite powerful and can melt small metal probes if shorted.

Maximum sleep current should not exceed 285 uA. If more current is detected, the unit needs repair.

..When the Portable is running, the current is about 150 mA or 180 mA if the RS/232 or modem port is turned on. There is an idle mode which occurs if the **Power Save Mode** is **On**. In this mode, the CPU is halted internally after waiting in the keyboard input loop for more than 1 second.

(continued on page 40)

Foundations

By Hal Goldstein

[The Foundations column contains material that we feel every Portable user should know. We assume the reader is a novice computer user; however, readers novice through expert should find at least some of the material covered here useful. If you would like to write articles for this column or want us cover some topic in this space, please contact us.]

Getting Started With TERM

By David Hughes and Hal Goldstein

Many Portable Plus users simply want to transfer files to other PC's or make use of commercial services such as CompuServe or MCI electronic using their built-in or external modem. These users do not require the sophisticated terminal emulation capabilities that come as part of HP's ROM-based communications package, Reflection 1 (formerly PC 2622). TERM, built into every Portable Plus, and a public domain program called PPTERM may be all that is needed.

WHAT CAN BE TRANSMITTED USING TERM?

TERM by itself may be used to transfer ASCII files. Examples of ASCII files include: (1) MemoMaker files saved as ASCII files (press f2, "document file" when saving MemoMaker file), (2) a Lotus file saved as a print file using the /Print File option (3) any The Editor file not containing foreign characters (4) an MS Word Print File.

TERM can also save to a file, ASCII text that is sent to it from another computer.

Here are simple rules for determining what material can be transferred to and from the Plus using TERM and your modem.

To determine if you can send a file using TERM, go into DOS from PAM. Issue the command **type filename** where **filename** is the name of the file you want to send. If you see readable text, you can send the file using TERM. If garbage appears on your screen or the system locks up, you can return to PAM by holding down the contrast key for 15 seconds.

The criterion in regard to whether you can receive a file or a flow of text with TERM is also simple. Any material that you can read on your TERM screen as it flashes by can be saved to a file on the Edisc or HP9114 disk drive.

CONFIGURING TERM

Before running TERM, you must configure the communications parameters to match the requirements of the host system. (The **host** system is the other computer—or information service—that you dial up and log on to.) In other words, both computers must be speaking the same language. (See "Communication Basics", Vol. 1, No. 4, P. 28.)

In order to configure TERM, you must enter **f5**

Datacom Config from the main PAM screen. The cursor keys allow you to move freely from field to field. The highlighted parameter may be changed with the **f3 Next Choice** or **f4 Previous Choice** function keys.

If you use the internal modem, configure the values in the column labeled **modem**. The values in this column must match these same values in the other computer. Information services such as CompuServe will tell you their requirements. In the case of CompuServe, **f5 Default Values** should work. The internal modem turns **ON** when TERM starts and turns **OFF** when TERM exits. Therefore, if you have an internal modem, you can leave the last line in the menu **Power To Interface** as **off**. Depress **f8 Exit** to return to the main PAM screen. For more information about possible configuration parameters, consult the "Datacom Configuration Parameters" table on page 9-7 of the Portable Plus Owner's Documentation.

PAM's f6 System Config You must tell PAM what kind of modem you use. Depress **f6 System Config** from the main PAM screen and move the cursor until the **Datacom Interface** selection is highlighted. Use the **Next Choice** key to select **Modem** in order to use the internal modem (or **Serial** to use an external serial modem).

STARTING TERM

TERM may be started from DOS or the main PAM screen by typing **term** followed by a **Return**. The TERM terminal emulation screen immediately appears.

Several function keys appear at the bottom of the display, used for controlling ASCII (text) uploads and downloads, filenames, local/remote operation, automatic line feed terminator, half duplex (local echo) display functions, and exiting the program. The functions of these function keys are explained in detail on pages 9-10 and 9-13 through 9-16 of the Owner's Documentation.

LOGGING ONTO AN INFORMATION SERVICE OR OTHER COMPUTER

Logging onto an information service is often the first attempt, to communicate with another computer via modem. Type the following command to dial the modem and call the other computer: **ATDT(telephone number)**

ATDT must be all caps followed (without spaces) by the digits of the phone number. The modem will ring once to let you know it's dialing. If you're successful, the modem should respond with either **CONNECT** or **CONNECT 1200**. Most information services require you to enter a user ID and a password. Your company may have an electronic mail system, word processor with file transfer capability, or general-purpose computing facilities available for your use. Be sure to review system-specific procedures for a successful logon.

TRANSFERRING FILES

After logging into your office PC, CompuServe, or other computer, you are ready to upload a file (send to it the other computer) or to download a file (receive it from the other computer).

PREPARING TO TRANSFER

Either before or after you have logged on, you must tell TERM the name of the file you want to upload or download. Press **f3 FILE NAMES**. If you want to

T/Master—it may be the only program you'll ever need.

And it may be the most “comfortable” program you’ve ever used!

It may sound strange to call a computer program “comfortable”, but that’s the best way we’ve found to describe T/Master. And the other part is true also: T/Master may be the only program you’ll ever need.

That’s because T/Master has within it virtually every business application you can think of, including word processor, spelling checker, file manager, spreadsheet, database manager, numerical scratchpad, graph making, data communications, desktop publishing, and even more.

There are, of course, other “integrated” programs on the market that combine a number of applications in one. T/Master, however, is the only integrated program that runs on an HP Portable. In terms of capabilities, T/Master also happens to be one of the best. But that isn’t what makes it so special.

You see, T/Master isn’t just a very good program. It is an entirely *unique* program. It’s one you simply must get your hands on before you can appreciate its incredible richness and elegance—and the sheer thoughtfulness that went into its creation.

THE HEART OF THE SYSTEM

As with most integrated programs, T/Master lets you share data between applications—for example, you can insert a spreadsheet into a report you’re typing, or can take information from a database and move it into a spreadsheet—all without leaving the program.

However, with most other integrated programs, you have to exit the module you’re in (e.g., word processor), load another module (e.g.,

spreadsheet), work in the second module, then “import” the result back into the first module. In addition, each module presents you with different commands, a different environment, and often a different “feel”.

Not so with T/Master.

T/Master doesn’t have modules in the usual sense. Instead, *almost everything is done using the word processor*; it’s the heart of the system. T/Master’s different functions (spreadsheet, database, etc.) are, in effect, *aspects* of the word processor that have special powers. Instead of leaving the word processor to create a spreadsheet that you then have to import, you simply create a spreadsheet (with all the computational power you need) right where you are.

Same for a database. Using virtually the same commands as for typing ordinary text, you can set up the structure of the database, enter data, sort, search, generate a report, and insert that report into your document.

And that’s why T/Master is so *comfortable*. You always interact with it in the *same* mode, which is basically just to type. And what you type is ordinary text, or numbers, or simple English-like instructions. With T/Master, you’re always on familiar territory.

SPECIAL FEATURES

Here are just a few of T/Master’s most special features:

The **word processor** includes over 100 different functions. You activate these either from menus or by means of simple typed commands. On-line help is available at all times.

Highly suitable for desktop publishing, T/Master’s word processor handles text in columns, and lets you view reduced-size layouts of entire pages.

The **spreadsheet** is different from any other. With most spreadsheets, the

columns are of a fixed, predetermined width, and the formulas for calculating each “cell” can only be viewed one cell at a time.

With T/Master, *you* specify the column widths and locations, and you type the formulas at the edges of the spreadsheet where you can

“No other application that I know of matches the power, thoroughness, and simple elegance of T/Master.”

-David Hughes, Contributing Editor, The Portable Paper

see them at all times. (Very helpful in getting your spreadsheets to work!)

Also, unlike other spreadsheets, you can imbed explanatory text anywhere you like—another benefit of T/Master’s text-oriented approach to program integration.

T/Master’s relational **database manager** competes with database-only products like dBase III. It’s easy to select and combine data from two or more files, set up cross-tabulations from data on disk, and generate ad hoc reports.

T/Master’s **data communications** capabilities include many you would expect to find in sophisticated stand-alone communications programs. Yet they’re easy to use even if you’ve never done data communications before. (Note: our version of T/Master has its data communications portion customized to the Portable Plus.)

T/Master includes a **“DO” command** that lets you string other commands together and execute them sequentially (in “batch” mode) without intervention.

It is surprisingly simple, for example, to set up a DO command that will perform the following functions at the end of every month: Compile data from selected databases, construct a bar graph, insert the bar graph into a monthly report, and address copies of the report to a selected list of recipients.

When you realize that you can orchestrate all this by means of a single DO command *entirely automatically*, you begin to see the incredible productivity and power that T/Master offers. At only \$299 for the entire package (or even less if you’re a Portable Paper subscriber), T/Master is easily the best software value available.

HOW COME I HAVEN’T HEARD OF IT?

The T/Maker Company, developer of T/Master, chooses to remain small. They do not advertise, but prefer to let T/Master be known by word of mouth. This has worked well because of the high level of user satisfaction: According to a recent survey, 12 out of every 13 T/Master users “highly prefer” the program over other integrated packages they’re familiar with.

T/Master is widely distributed in Europe and the Far East, where it is bundled with IBM PC compatible computer systems.

NOT FOR EVERYONE

T/Master is not for everyone. The T/Maker Company has told us that their most satisfied users are computer-oriented people for whom increased productivity is important (as opposed to casual computer users who might not appreciate the time and effort T/Master can save them, let alone its elegance).

If your computer is an important part of your work life, and if you’re willing to learn a new—and much easier—way of functioning, then we urge you to try T/Master for yourself. If, within 60 days, you feel T/Master is not for you, simply return it for a full refund.

But remember, T/Master must be *experienced*. It has a unique way of doing things and a “feel” that’s all its own. Order T/Master today. It may change the way you use your computer.

T/Master
(For Portable Plus, Portable Vectra, HP150).....\$295.00
\$279.95 for Portable Paper subscribers

T/Maker
(HP110 Portable).....\$295.00
\$199.95 for Portable Paper subscribers

PORTABLE PLUS USERS

You’ll need 296K of main memory to run T/Master, plus 135K Edisc space for the core system, plus the following amounts for storage of the various parts: word processor: 53K; speller: 151K; database and spreadsheet: 135K; data communications: 35K; chart making: 52K; misc. utilities: 60K. You can, if you wish, run the various parts of T/Master off your external disk drive.

HP110 USERS

T/Maker, an earlier version of T/Master, runs on the HP110 Portable with an external disk drive. The program runs beautifully. T/Maker doesn’t support data communications, but it does include word processor, spelling checker, database, spreadsheet, scratchpad, and simple bar charts. It is easily the most comprehensive program available for the HP110.

RECOMMENDED FOR:		T/Master	
HP110 Portable		•	•
Portable Plus		•	•
Portable Vectra		•	•
HP150		•	•
IBM PC and compat.		•	•

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download a file, type in the name of the file you want the downloaded information to be sent to at the **FROM HOST to file:** field. In order to enter the name of the file (on your Edisc or HP9114 drive) that you want to send (upload), press **Return** and you will be at the next field: **TO HOST from file:**. When you are done, press **f3 File Names** again. Note that if you do not specify file names, TERM assumes you want to send a file called **termsend** and capture a file called **termlog**.

UPLOADING A FILE

Assuming you are connected to another computer, you are ready to send the file you just specified. Initiate the transfer by depressing **f2 To Host**.

DOWNLOADING A FILE

An ASCII download is just as easily accomplished as an upload. Pressing **f1 From Host** causes everything that gets sent to your screen to be captured in the file you designated. If the file that you specified (in the **From Host to file:** field) already exists, it is destroyed and new information is written to the file. If the file doesn't exist, it is created. Alternately, you can press **Shift f1 From Host** and new incoming data gets appended at the end of the file. An ***** appears in the **FROM HOST** when you are replacing a file, and a **+** appears in the **FROM HOST** label if you are appending to a file.

LOGGING OFF

Proper log off procedures are designed to alert the host that your session has ended. This procedure is very important and can save you money, especially if the system charges an access fee and may take several minutes before recognizing your session has abnormally terminated.

Disconnecting the modem can be a bit tricky, since some information services (e.g., CompuServe) will re-prompt for a logon. Some services automatically disconnect the modem. If your system doesn't automatically disconnect for you, type **+++** slowly to return to the modem's command mode (the modem responds with an **OK** if it has acknowledged your request), and then **ATH** to hang up the modem. If you have trouble doing this, you can always disconnect the telephone cord momentarily. It's not very professional, but it works if your **+++** is repeatedly swallowed by CompuServe.

TRANSFERRING OTHER FILES

If you want to transfer programs, Lotus Spreadsheet files, MS Word files, MemoMaker document files, you cannot use the TERM program directly. However, CompuServe HP forum system operator, Mark Horvatic (76703,4163), wrote a utility, PPTerm, available on the CompuServe HP forum to complement TERM. PPTerm uses the XModem protocol and allows you to transfer these files to and from other computers. PPTerm will be available on the 1988 subscriber's disk that we will be sending out by the end of the year. If you are desperate, send us \$7.50 for the PPTerm disk, or a formatted disk with self-addressed stamped envelope, and we will put on PPTerm files for free.

OTHER HINTS AND A SHELP TRICK

The keyboard macro facility in the Shelp program sold by Personalized Software can be used to save typing the same logon strings. For example, I (Hal Goldstein) have

assigned the **d** key (for dial) to **ATDT12701581**, my CompuServe phone number. The **i** (ID) is assigned **72257,714\MY*PASSWORD**. When I call CompuServe, first I press (a la Shelp) **CTRL Extend Char d** and out pops the phone number. When CompuServe wants my ID, I press **CTRL Extend Char i** and out pops my ID and password.

The subtle distinction between **f1 From Host** and **Shift f1 From Host** is important. If you are logged onto a computer, and you want to save some of the information that comes on your screen periodically, be sure to use the **Shift f1** option. With this option you can capture incoming data by pressing **Shift f1 From Host**. Then you can temporarily stop saving information to the designated file. When you press **Shift f1 From Host** again, the new information will be appended to the file. Otherwise, every time you turn on **f1 From Host**, you destroy whatever was in the file up to that point.

Finally, if you have trouble sending or receiving information, try pressing **f5 Auto Lf**. Before I dial up CompuServe, I always press that key; otherwise, I can't read my EMail.

CONCLUSION

TERM adds basic terminal capability to the Portable Plus. Coupled with the PPTERM program, it may be all you need in the way of communications software on the Portable Plus. With this introduction you'll find the Portable Plus Owner's Documentation provides very good information pertaining to the operation of TERM.

Getting Started With PC2622/Reflection 1

By David Hughes And Hal Goldstein

INTRODUCTION

HP sells the Walker Richer & Quinn ROM-based communications package "Reflection 1" for the Portable Plus. Reflection 1 works either with the Plus internal 1200 Baud modem or with an external modem. Originally, this same package was called PC2622. Reflection 1 represents a minor upgrade of PC2622.

The product is a powerful terminal emulation package especially valuable to those who want to use the Plus as a terminal for the HP3000 and other large, multi-user computers. In this article, unless otherwise indicated, "Reflection" and "PC2622" are used synonymously.

Reflection can also be used for file transfer to other computers and for logging onto information services such as CompuServe. Although it is not difficult to perform these feats, how to do so is not obvious. The formidable-looking manual does not help the situation. What follows is a cookbook approach, with examples, showing how to transfer files, and how to capture data that appears on the Reflection screen.

GETTING STARTED

There are two ways of starting Reflection from PAM: start **HP Reflection** or **VT Reflection**. (PC2622 users start **HP Terminal** or **VT Terminal**). These two options represent two types of terminals that large, multi-user computers recognize. Unless you are logging on to an HP3000 or are familiar with HP terminals, you are probably better off using the **VT** option from PAM, since **VT** terminals are more common.

Erased your files? Get them back with The Norton Utilities!

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It happens to the best of us. One slip of a finger and a whole week's worth of text or data is past history. *But not if you have THE NORTON UTILITIES!*

Just type **qu** (for quick unerase), give the first letter of the name of the file you erased, and *the file gets restored*. Miraculous as it sounds, in many cases that's all there is to it!

How can a deleted file get unerased?



Simple. The file isn't really deleted in the first place. When you delete a file, all that actually gets erased is part of the file's directory entry. (That's why it only takes an instant to delete an entire file.) Without a directory entry, DOS can't find the file, but THE NORTON UTILITIES can.

Now, what about those cases where you can't possibly recover a file because you've already partially overwritten it with other files? Surely THE NORTON UTILITIES can't help you then?

Wrong—they can! THE NORTON UTILITIES won't recover the entire file, of course, but they *can* help you restore the portions of the file that still remain on the disk.

It's done with a powerful utility called **nu** that lets you display, change, and capture to a file any information on any disk. In complex cases you may need to do some detective work, but **nu** will help you find whatever remains on the disk, thereby saving you from countless hours of retyping lost data.

In my opinion, *the ability to recover lost files alone makes THE NORTON UTILITIES well worth the price*. But there's even more to the package: THE NORTON UTILITIES

are also an excellent *disk management system*. Here are some examples of what you can do:

Let's say you want to sort directories and files physically on disk—either by name, extension, size, date, time, or by any combination of these. Just use the **ds** (disk sort) command. I use this one to sort my electronic disk files by size all the time. Then when I display the directory, the larger files come at the end of the list, and I can see at a glance which ones to move elsewhere to free up any needed amount of disk space.

Or let's say you remember putting the

"Indispensible."

PC Magazine

"Don't compute without it."

The New York Times

"You'll bless this disk."

Peter McWilliams

(The Personal Computer Book)

Personalized Software is authorized to distribute THE NORTON UTILITIES on 3 1/2" disk customized for users of the HP110 Portable, Portable Plus, and HP150.

phrase "a penny saved is a penny earned" into a text file on your electronic, floppy, or hard disk but you can't remember which file it was—or even which directory. How to find it? *No problem*. Just type **ts** (for text search), specify the phrase, and the program will display every occurrence of the phrase, identifying each occurrence by directory and file.

Or let's say you can't remember which sub-directory you put a given file into. Instead of hunting for the file manually, just type **ff** (find file) and specify the name of the file and the directories to search through. The program does the rest.

Other useful features include the **fa** command, which lets you change file attributes (for

"THE NORTON UTILITIES are among the most helpful utilities I've run across. I use them myself every day, and in my opinion, they're a must. Here's why."

*By Hal Goldstein, Publisher
The Portable Paper*

example, to make erasable files unerasable or vice-versa), and the **fs** command, which tells you the total file size of a group of files (I often use it to find out the total disk space occupied by my Lotus worksheet "WKS" files or by all my text files from a given project).

Because of their great helpfulness and ease

of use, THE NORTON UTILITIES are already a best-seller in the IBM PC market. Personalized Software is authorized to distribute them on 3 1/2" disk for users of the HP110 Portable,

Portable Plus, and HP150. (All it takes is a few keystrokes to customize THE NORTON UTILITIES to your machine; just follow the simple customization instructions included on the disk.) Also included in our package are the standard 5 1/4" disk sold by Peter Norton for IBM PCs.

THE NORTON UTILITIES are a time-saver for you and a life-saver for your data. Use them just once and you'll wonder how you ever did without them. Order your copy at no risk today.



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RECOMMENDED FOR:	
HP110 Portable	●
Portable Plus	●
Portable Vectra	●
HP150	●
IBM PC and compat.	●

In order to run Reflection, you need to have at least 144K of system memory configured in PAM's **f6 System Config**. (You need 156K if you have Shelp installed.)

One important safety valve within Reflection: If you ever are in some screen and you don't know what to do, press the **User System** key next to **f5**. That brings you back to the main Reflection menu.

CONFIGURING REFLECTION

In order to successfully connect your Portable Plus with another computer you must tell Reflection certain things—that is, you must configure Reflection. Unlike the Portable Plus built-in TERM program, Reflection does not use the PAM configuration defaults, available from the main PAM screen via **f6 Datacom Config**. You must reconfigure from Reflection.

The first concern when getting your Plus ready to talk to another computer is to make sure both computers are talking the same language. (See "Communication Basics", Vol. 1, No. 4, P. 28.) That means both computers must agree on such parameters as the speed of transfer, the characteristics of each unit of data being transferred, error checking, and so forth. (Note that when you are calling an information service such as CompuServe, you are talking to another computer.) Once VT Reflection has been loaded from PAM, begin configuration by selecting **f3 config keys**. (In PC2622 first press the **User System** key next to **f5** to get rid of the help screen.) Now press **f2** (labeled **modem config** in PC2622 and **COM2** in Reflection). A configuration menu appears, showing the various communications parameters that may be changed.

For example, CompuServe usually requires the following settings: Baud Rate: 1200 Baud; Parity: Even; Pacing: XON/XOFF; Stop Bits: 1. In order to successfully communicate with CompuServe, you must use the **tab** key and the **f1 NEXT CHOICE / f2 PREVIOUS CHOICE** keys to exactly match the Reflection 1 parameters to CompuServe. In general, you must match the other computer in all these parameters. If in doubt, try the default settings, **f3**, first and work from there. The variables on the left are most subject to variation.

After the two parameter lists match, depress **f6 SAVE TO DISK**, and then **return**. You've now saved the internal modem configuration parameters to your Portable's Edisc as file **pc2622.cnf** (PC2622) or **reflectl.cnf** (Reflection). Before pressing **return** you could have typed another name for your configuration file.

Note that when Reflection initially starts, it uses communication parameters found in file **pc2622.cnf** (or **reflectl.cnf**), if the file exists.

You have now told Reflection how to configure your modem properly so as to make proper connection to another computer. You still must tell Reflection how it is to act as a Terminal. That is, you must tell Reflection how to have the screen behave as it receives information from the other computer.

If you just pressed **f6 SAVE TO DISK**, then PC2622 (but not Reflection) owners press **f3 terminal config**. (Remember that if you get lost, press the **User System** key. From there press **f3 config keys**.) There are two pages (screens) of Terminal settings within Reflection and three within PC2622. All but one of the settings in these pages can be ignored.

Press **f1 terminal page 1** if you have PC2622 and **f3 terminal page 1** if you have Reflection. The very first setting, **Remote to** (PC2622) or **Datacomm port** (Reflection) is the only essential one. You must inform Reflection whether you are using your internal modem called **com2** in Reflection and **modem** in PC2622. Otherwise, tell it you are using an external modem called **com1** in Reflection and **serial** in PC2622. (If you leave this setting to the default, **com1**, and you are an internal modem user, get ready to be frustrated. You will not be able to type on the Reflection screen until you change **Remote to / Datacom port** to **modem** or **com2**.)

The other value we suggest you change in the Terminal menu is **Backspace key**. Tab to the **Backspace** key and press **f1 NEXT CHOICE** to select **BKSP**. This action causes the backspace key to act like the left cursor key. Otherwise, you cannot use backspace to back up when logged onto another computer.

You may consult the manual or experiment around with other settings. When you've completed this configuration menu, select **f6 SAVE TO DISK** and then the first page of the terminal configuration.

The second (and third) page of the terminal configuration isn't necessary for our purposes, but you will find the **Answerback message** field in **terminal page 2** a convenient place to store your CompuServe ID and password. For example, you could put **72257,714\MY*PASSWORD** in that field. For even greater security, you can change the **Conceal answerback message** field to YES.

LOGGING ONTO COMPUSEVER

In this example we assume you want to log on to CompuServe. However, you will go through similar steps when you want to log on to or download files from any computer.

Plug the telephone jack into the modem in back of your Plus (or into your external modem). Dial CompuServe with the internal modem by typing the following command. (Substitute your local CompuServe number or the number of the computer you want to dial. Shelp users, as discussed in the TERM article, can assign a macro key to this command.)

ATDT12701581

Note: **ATDT** MUST be capital letters. Press **Return**. You should hear the Plus's speaker ring once. There will be silence until the modem responds with a successful connection **CONNECT 1200**. If the phone is busy, the modem will respond with **BUSY**; if there is a ring but no answer, **RR** will be returned.

Assuming that CompuServe has answered, and you received a **CONNECT 1200**, it should respond with some node ID that you can ignore. Press **return** and CompuServe will respond with **HOST NAME:**.

Type **CIS** (for CompuServe Information Service). Following the prompts, CompuServe will ask for an ID and a password. If you have previously loaded your password into the **Answerback message** field during configuration, depress the **User System** key to get the main menu. Then press **f2**, then **f6 ANS BACK** return. You're logged on!

DOWNLOADING FILES USING XMODEM

Let's say you've joined the CompuServe Hewlett Packard PC forum (just type **go hp** at any CompuServe prompt, and

follow the directions for joining the forum). During a "browse" of **d111** (Data Library 11) you have found a file called **mf.com** you'd like to download.

Before we proceed with the actual download session, you'll probably want to know how to find **d111**. Just type **d1** (or the corresponding number) from the forum's function menu, depress **11** and a carriage return when the data library menu appears (this corresponds to the general interest data library). Since we already know what file we want, all that is left is to instruct CompuServe that we want to download a file, initiate the transfer with Reflection 1. Type **dow** at the Data Library Disposition prompt, and enter the name of the file **mf.com**. At the Data Library Protocol Menu prompt, select **XModem**. (On CompuServe you are given menus for these options, so the above instructions are not as bad as they sound.)

Once CompuServe has displayed the **transfer initiated** message, it's our turn to set up for the transfer. To accomplish this, depress **User System** to get Reflection 1's main function keys, and then select **f5 COMMAND LINE**. Type the following at the **Command (A):** prompt

XR filename g

filename is the name of the file you want to download **mf.com** into. (You can use the same name **mf.com**, if you wish.) A file transfer screen appears, and the "Transfer In Progress" message appears in the lower left hand corner of the display once the transfer has commenced. (Note: **XModem** is a commonly used error checking file transfer protocol for text and binary files.) Additional file transfer statistics can be viewed by depressing the **f4 SHOW STATS** key. When Reflection 1 completes the transfer, the computer beeps and the file transfer screen disappears. Depress the **User System** key to clear the command line prompt from the bottom of the screen, and a carriage return to tell CompuServe that the file transfer session has ended.

If you wanted to send a file to another computer, or upload a file to CompuServe, you would use the **XR filename** command.

CAPTURING TEXT ON THE SCREEN INTO A FILE

If you are in CompuServe or logged onto another computer, often you want to put into a file whatever flashes across your screen. This is particularly the case if you want to read electronic mail, or if you want to download a simple (ASCII) text file from the other computer. Here are two methods.

Press **User System** to get the main menu. Then press **f1 device control**. Press **f3 "to" devices**. If **f5 TO PRINTER** has an asterisk in it, press **f5** to remove the * so that the screen information will not be sent to your printer. Press **f2 TO DISK** and enter the name of the file to which you want the data sent.

Now press **f1 device control**. Then press **f1 device modes**. Press **f3 LOG BOTTOM** until an * appears in the block. Until you take the asterisk out of the **LOG BOTTOM** box, everything that appears on your screen will be captured in the file.

Alternately, you can give three commands. Press **User System**. Now press **f6 COMMAND LINE**. Type in the following three lines with a **return** after each line.

CLOSE PRINTER
OPEN MYFILE APPEND
LOG

MYFILE is the name of the file to which you want the data sent.

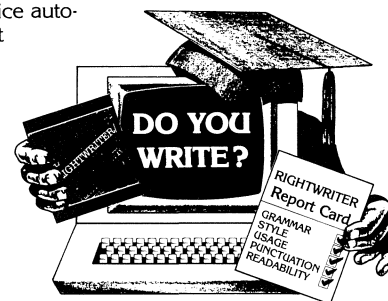
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It is possible to save the above three commands in a Reflection command file. Such a file can be invoked from the Reflection command line. The details are beyond the scope of this article. However, you are now at the point where the manual may now make some sense to you.

LOGGING OFF COMPUERVE

Properly logging off of CompuServe is important for accurate billing. Unless you log off with the keyword **bye** from a main CompuServe prompt, CompuServe may not detect the logoff until several minutes have elapsed. After you log off, CompuServe displays the **disconnect** message and the elapsed time online. Now you may disconnect the modem from the phone line by depressing **CTRL Shift f2**.

CONCLUSION

Reflection 1 is a powerful program for the Portable Plus. Mastery requires several hours of practice and review of the procedures presented in the manual. Additional features such as user-defined function keys and a robust command language automate the logon process, and should be studied for even greater convenience.

· P O R T A B L E · PROFILES

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The HP110 Near The North Pole

Brendan P. Kelly may be the northernmost user of the HP Portable. He uses his Portable to study whales, polar bears, and seals near the North Pole in conjunction with the University of Alaska, Fairbanks.

I bought my 110 in November 1984 mainly for my work as a Research Associate with the Institute of Marine Science at the University of Alaska, Fairbanks. For the past 11 years I have been studying marine mammals in Alaskan waters, mostly the Beaufort, Chukchi, and Bering seas. I needed a personal computer for word processing, for data storage and analysis, and for communicating with mainframes and other PCs. Furthermore, I needed a computer which could be taken on field trips where it would be subjected to rough handling and cold weather. Long-lasting battery power was essential since I work for months at a time in camps on the sea ice with no AC power and occasionally on Soviet vessels with 220 volt AC power. When HP came along with the Portable, it was as if they had designed it with me in mind.

My projects on the sea ice include studies of ringed seals, polar bears, and bowhead whales. March, April, and May usually find me camped in a tent on the ice of the Beaufort or Chukchi sea. The temperatures get as cold as -30F with windchill factors to -70F, tough on computers and biologists. Travel generally is by snowmachine, tough on computers and kidneys. My Portable has taken all of that abuse well; I simply put it in a daypack before mounting a snowmachine and, in the colder weather, I add a hot water bottle and a few pieces of thinsulite for insulation. I doubt there is a laptop with built-in mechanical disk drives that could take that punishment.

While camped on the ice, I enter data into Lotus 1-2-3 since it resides on ROM and requires no disk drive. I usually leave the disk drive on land in a nearby village or laboratory, and when it's opportune I copy the data from my A drive to a disk. At the same time, I can communicate with the University's mainframe using the modem and **terminal** communications software with all its glitches.

By early June I am back in Fairbanks at my university office where I transfer the data from Lotus to dBase II and/or Statistix for analysis. Then I need only use Wordstar on my Portable to write the reports, papers, and next year's proposal.

Boots

Molly Glen (CompuServe ID 73250,2264) could be thought of the Erma Bombeck of the computer world. Every mishap that could befall a novice user seems to have befallen Molly. Despite these adversities, Molly has emerged heroically with her sense of humor in tact.

I like cats! And I decided to like this guy. He kept his cat "Boots" in his monitor carrying case. The long-awaited day had finally dawned, and he brought his station wagon loaded down with my HP Vectra, Laserjet+, Panasonic KX-P1080i, Thinkjet, Turbo-150 power backup, MaynStream 20 tape system, Hayes modem, HP 9122 drive, a caseload of books, and my HP PORTABLE PLUS. This represented megabucks and an astounding display of knowledge-on-paper. Now I could run General Motors single-handedly with my fabulous equipment.

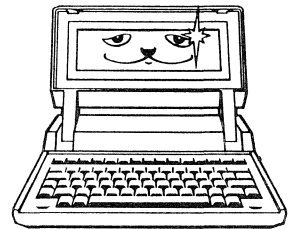
By way of explanation here I would like to say the reason we bought this equipment is that my husband has written two novels, one about murder and sex and the other about terrorists in a hotel in Hawaii, would you believe. I do his typing and have cranked out thousands of pages of prose on an IBM Selectric. Anticipating the possibility that he might write his third, fourth, and fifth books, we decided to get some sort of word processor to facilitate the whole process. But what if he didn't continue to write books and the WP sat moldering in the corner gathering dust? Solution—the total computer. I figured I could always put my recipes on it. (grin)

The minute Boots' dad opened his mouth, I knew we had a problem. We just didn't speak the same language. He explained to me that he had "booted up the sets; configured the peripheral systems; formatted the C disk in DOS; chkdsk'd out the Command.Com programs, internal and external; put in a number of batch files; checked the parameters for the external drives"; and generally had everything ship-shape. Wrong. If anything should have been programmed and formatted, it was me.

Mind-boggled, I thanked him and he left. Full of enthusiasm and determination I sat down at PPlus (it looked less intimidating than Vectra) and, in my language, turned it on. Shock, I couldn't see a thing on the screen...except a series of faint letters. I placed it north, south, east, and west, with lamps turned on, off, and half way. Nothing. I flipped the lid up, sideways, and almost upside down—still nothing. Back to my cat friend.

Then came a series of discussions on monitors, and we settled on an Amdek. Now, at last, I could see something. The problem here was there had to be an interface gadget which, in turn, required a veritable cat's cradle of wires leading all over the place in what I learned was a loop...with the interface somewhere in the middle. Labels were the answer. Red and green labels, greens for the inputs and reds for the outputs. Or ports...whatever.

BUT due to the series of arguments, misunderstandings, calls back and forth to HP itself, delays in delivery, dealer inability to explain anything about how anything worked (in plain language), HP discontinued the dealership. Now I was up a creek in a leaky canoe—without a



paddle. My nineteen hours of free instruction were down the drain.

Head unbowed, undaunted and determined, I made the decision to settle down and wade through two volumes of wisdom on how to work MS WORD. You wouldn't believe the trauma involved in learning how to control a little flashing light, i.e., cursor, according to the book. Trying to be friends with my machines, I decided to call it (cursor) Big Twinkle (Vectra) and Little Twinkle (PPLUS). Twinkle jumped here and there without notice and generally caused havoc, fragmenting my worked-over text into a thousand pieces at just a touch of the finger. My two volumes of instructions had markers on every page, notes in every margin and acquired a dog-eared look. More frantic, frustrated calls to HP were made.

But now came the problem of saving to a disc (or disk?). No way could a disk be formatted. Back to another dealer, in Connecticut. Solution—a deceptively simple one—not to be found in any book—don't put anything on top of the disk drive. In my tribulations with the loop and trying to be neat about the whole setup, I had put the printer on top of the disk drive. It had simply refused to run. (Even I could see the problem of the disk drive on top of the printer.)

That solved, the very first time I tried to format a disk, PP threw out another curve in the form of, "Warning—You Are Formatting Your C Disk." "You Will Lose Everything If You Proceed!!!!!!!" "Do You Want To Proceed?????!!!!!!!" Stunned, I sat back, considered this last straw; recovered a slight bit of composure and timidly typed "N."

It was then that the idea occurred to me that perhaps a one-liner book, in large print, words of one syllable, understandable language, step-by-step outline form, and graphic illustrations (maybe cartoons?) should be written about the computer world.

HP and HPPLUS have tried...and I have tried...to communicate with each other. We have gone through a factory quantity of printer paper, to communicate with each other. As a matter of fact, a great step in this direction has been hooking into CompuServe. Now I feel that Big Twinkle and I really do talk to one another and she(he) has become my friend, blue blanket, and companion.

But how about Little Twinkle? Guess what? My modem in PPLUS won't work, must be sick, no one can figure out what is the matter, and I'm now back to square one. Move over, Boots, I'm jumping into the case with you.

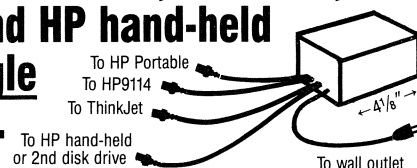
Lots Of Tidbits From Paul Grimmer

Paul Grimmer sent the following series of letters (and more) to us via CompuServe one week. Paul proves that he is prolific not only writing useful software for the Portables, but prolific writing useful information for Portable users.

As most of you know, Paul has his own company, called Southern Software. He has contributed much to the HP user's library for HP handheld computers. Fortunately for Portable users, he obtained an HP110 in early 1986. Since then he has filled important gaps by writing four programs for the HP Portables.

His best-selling product, SideWinder, allows users to print spreadsheets (or any ASCII file) sideways to the ThinkJet printer. Paul then exploited the graphics capabilities of both Portables and the ThinkJet with his

Power your Portable, ThinkJet, HP9114, and HP hand-held from a single wall outlet.



Can't plug your Portable, ThinkJet, HP9114, and HP hand-held into the same wall outlet because the recharger cubes are too big? Here's the solution:

The Model 110A Power Cube/Recharger from Summit Concepts.

The Model 110A has five power cords. Four are HP cords that plug into your HP Portable, ThinkJet, HP9114 disk drive(s), or HP hand-held (HP41, 71, 75, series 80, etc.).

The fifth is a conventional AC cord that plugs into the wall and powers the other four.

Get rid of that tangle of extension cords, power strips, or whatever else you've been putting up with. Order a Model 110A Power Cube/Recharger today.

Model 110A Power Cube/Recharger \$89.95
\$84.95 for Portable Paper subscribers.

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drawing program, Sketch. He is perhaps proudest of HPrint, which allows merging of text and graphics, prints ThinkJet italic, performs mailmerge, and, in general, makes full use of the ThinkJet and QuietJet printers. Finally, he became a leading HP-IL expert by writing Link software, which allows data transfer between all HP-IL devices. All of his products are available through Personalized Software.

When he's not developing software, he works as an engineer for Conoco.

Date: 09-Sep-87 17:14 CDT

From: Paul Grimmer, South. Soft. [71370,1303]

Subj: miscellaneous

Hal,

Just a few comments to let you know what is going on in Anchorage.

1. I have gotten hooked on CompuServe! In a way, I'm glad I didn't get on it until recently since I would be totally broke by now if I had.

2. There is a tremendous amount of good material for Pascal programmers on the Borland CompuServe forum. I will make a disk of some of the really good stuff that works with the Portables and send it to you. In general, all of the uploads include source code, so even if it doesn't run at first, it is easy to fix it. An example includes a critical error handler that lets your program control DOS critical errors (i.e. the ones that generate "Abort, Retry, Ignore?" or as I have seen it "Abhor, Retch, Ignite?"). In this way, you can retain total control over the program, and it can't abort unless you want it to. I rewrote it and uploaded the new version. It is all written in INLINE code (my first attempt at INLINE/assembly). Pretty good.

3. With my newfound skills in assembly (now about 4 weeks old), I have written some Turbo stuff using INLINE as well as some standalone programs. They include:

a) a pop-up printer configuration program intended primarily for the QuietJet, LaserJet, and PaintJet (Portable Plus only).

b) I redid a program called OFFPLUS that i)checks for a password on the command line when you run it, ii)reports the battery %, iii)powers down, and iv)when you press a key to power up if you had entered a password, it will not let you continue until you enter it. Portable Plus only.

c) I wrote a small program (in assembly) that shells to MemoMaker. It converts the Backspace key into a deleting

Backspace key rather than being essentially a left arrow key.

d) a set of Turbo procedures to control the beeper on the Portables. I even have the Portable Plus playing a pretty good version of the William Tell Overture.

e) some Turbo "fastwrite" and "QwikPrint" procedures for both the Portables. I didn't fully appreciate how slow DOS really is until I bypassed it...

[Ed—We'll be putting some of these on the 1988 Subscriber's disk.]

4. I have been working with TurboPower Software to extend their very fine program package called "Turbo Optimizer" to work on Turbo Pascal programs written with generic Turbo Pascal v3.01 (the one we use on Portables). I have it working, and they are evaluating what I have done. It speeds up programs by 5-15%, but the major advantage is that it can throw away unused code both in the user's area and also in the run-time library. I have a few programs that ended up being less than 100 bytes, but these are special cases.

As an example of what to expect, I have run SKETCH (45,700 bytes) through the package, and it came out 38,000 bytes. HPrint was reduced from 50,127 bytes to 42,000! This will really be nifty for owners of the Portables (limited RAM on the Portable and limited ROM slots on the Plus).

5. I am reworking LINK. It will be significantly enhanced. The most significant change will be that it will make the PC able to be all HP-IL devices AT THE SAME TIME. "They" told me it couldn't be done, but it can (you gotta trick the HP-IL chip...).

6. SKETCH is next. Major changes contemplated include a much larger vertical drawing size (up to 960 dot rows) to allow full page graphics; a condensed file format (drawings of 960x640 dots take up 60k "as-is"); an optional status line on the bottom row containing much of what is on the current status screen (now the up/down pen can be one toggle key, which will free up a mouse button); "undo" feature will be streamlined (e.g. the screen will not be saved/restored each time a cursor key is pressed); partial screen areas will be able to be moved around the drawing by dragging it around similar to the rubber band line; and finally, partial screen loads will be much quicker (bit mapping logic improvement).

7. HPrint will be upgraded when a) we get some more user feedback, and b) the capabilities of PaintJet, LaserJet (graphics), and a new printer I can't discuss yet are worked in. By the way, I have a PaintJet loaner and it is really impressive. Not much use with Portables though (other than color text a la HPrint).

8. Southern Software now offers the following for the QuietJet: a) RAM chip installation, b) complete italic downloadable fonts, c) NLQ SideWinder (prints sideways in a downloaded sideways NLQ font rather than graphically), and d) a character maker program/font download control.

9. Upcoming projects- A pop-up HP printer font control package (Portable Plus and IBM); a "generic" Turbo Pascal pop-up for Portable Plus and possibly the HP110 (if, mouse driver author Bill Saltzstein and I can get just a bit more technical poop); publishing a library of Pascal routines for the Portables (several of which were described above). I don't know yet whether there will be a charge for

the library nor how much the charge would be. That may close out my programming career for the Portables. . .

10. I have been dabbling with both MicroSoft's MASM and also a shareware assembler I got from CompuServe called A86. Other than the fact that the author of A86 is more than a tad obnoxious, I really like his program. It allows you to bypass about 99% of the garbage that Microsoft requires, and it can produce a .COM file directly. If you think enough of your readers would be interested, I could write a short review (both run on the Portables). It may be beyond the majority of subscribers (some of it is still beyond me)...

12-SEP-87 17:04 CDT, DUETTE

Hal,

I was able to optimize Duette for you so that you will be able to fit it on a single 64K EPROM.

I don't know how long it will be before Turbo Optimizer will be released for the generic MS-DOS version, so this may be a good way to get it going quickly since by definition I have the rights to Optimize anything I want since I modified it with their permission.

They may be willing to support the Portables and HP150 with it since the new version of Turbo Pascal (4.0) will have its own routines built-in for unused code removal, and I don't think it will run on a generic MS-DOS PC. Turbo Optimizer will then only be worthwhile for those of us who use MS-DOS Turbo Pascal 3.01

13-SEP-87 02:43 CDT, HPCALC & MOUSE

Hal,

I just played around with HPCALC on the 1987 Subscriber's disk for the first time. It is pretty neat! I also played with it using the Mouse and it works very well. One thing I like to do since I have a Microsoft mouse is to leave the serial port turned off except when I actually use it. For others in this environment, I offer the following batch file which works well if both SKETCH and HPCALC are on ROM and/or on EDis:

sk / 20 40 70 70

hpcalc

sk / 0

type a:\doskeys

What **calc.bat** above does is turn on the mouse with the **Select** key as the left mouse button and **Return** as the right button. Now when HPCALC runs I can use the mouse exclusively since I can even enter numbers using the mouse (point to the number and press the left button).

When I exit HPCALC, the batch file goes back into SKETCH just long enough to turn off the serial port.

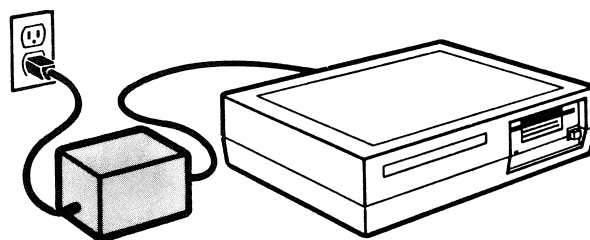
The last line "types" a file containing my function key definitions, block cursor definition, etc. and is optional. This may be of some use to *The Portable Paper* subscribers.

17-SEP-87, SUBJ: MISC

Hal,

You're probably going to get tired of getting these "letters" but I find that it is a very convenient way to pass along tips, ideas, etc. that may be of some use in *The Portable Paper*.

THE HP9114 EMPOWERER



If you've been frustrated trying to use your HP9114 external disk drive only to have the battery quit before you've finished your work, then you know the problem. Now you need the solution.

THE PROBLEM:

The charge on your HP9114 battery doesn't last long enough for you to do all you'd like to. For that matter, in some cases it doesn't last long enough to do *half* of what you'd like to.

According to Hewlett-Packard, you get up to 40 minutes of continuous usage before the battery dies. We've never gotten more than 20. Just formatting disks, transferring files, or running disk-intensive software and getting it to work can be a major triumph.

How many times have you wished you had a second external disk drive?

The Portable Equipment Exchange, a division of Personalized Software, is selling HP9114A units including power supply at a substantial discount. See enclosed four-page brochure for details.

Plugging in the HP9114 doesn't help, either. That only recharges the battery—it doesn't let you keep working.

WE HAVE THE SOLUTION:

The official HP suggestion is to buy another battery pack and keep both plugged in. When one loses power, replace it with the other. This seems clumsy to us. What if you want to do several hours of disk intensive work? At Personalized Software we have a better solution—the HP9114 Empowerer.

The Empowerer is special power supply that will allow your HP9114 disk drive to run forever. Just remove the battery pack,

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HP9114 Empowerer \$99.95
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RECOMMENDED FOR:

HP110 Portable	•
Portable Plus	•
Portable Vectra	
HP150	
IBM PC and compat.	

Shelp Tip

The Shelp program has some obvious limitations which we hope to address soon with a new pop-up program, but I have found the key macros to be useful. One tip I have is that you can enter a carriage return into a key definition which lets you effectively chain DOS commands into one keystroke. For example, suppose I wanted to first reset my DOS function key assignments (by **typing** a file I have named **doskeys**), then do a directory listing, and then do a verify delete (with **vd1.com** from the DOS Tools disk) of all of the files I have with an extension of **.bak**. I can assign all three of these to one key in Shelp as follows (note that **<cr>** represents a press of the **Return** key):

type a:\doskeys<cr>dir<cr>vd1 *.bak<cr>

If I assign this to the **d** key in the Shelp key assignments, each time I press **CTRL Extend Char d** from DOS, all three tasks will be done. The only limitation I have found is that when one of the tasks you are "chaining" to requires keyboard input, it will "read" one or more of the rest of the keystrokes Shelp stuffed into the keyboard. For example, you could not put "vd1 *.bak" as the first item above since VDL asks for confirmation before it deletes each matching file.

Escape Character in MemoMaker

Also it was mentioned in *The Portable Paper* that you can't enter the Escape character into MemoMaker on the Portable Plus. This is not true. Most lower ASCII characters (i.e. from 1-31) including ESC (ASCII 27) can be entered by pressing Ctrl and the appropriate character. For example, to enter an ASCII 2 (which MemoMaker will interpret as a bold character when the file is reloaded later), press **CTRL B**. The Escape character is ASCII 27, which is entered as **CTRL [** since the **[** character is the character just after **Z**, the

26th character of the alphabet. One important note here—MemoMaker will save your escape sequences properly in ASCII mode only. If you save a file containing escape sequences in Document mode, MemoMaker will enclose each "special character" (of which ESC is one) in a special two-character sequence (i.e. an ASCII 27, special, ASCII 28). This is not good but shouldn't be too much of a problem since lower ASCII characters are not usually entered directly into a document file.

Turbo Pascal v4.0

I don't yet have Turbo Pascal 4.0, but I have gotten some answers on its possible use on the Portables. The editor definitely won't work since it uses direct screen writes. The compiler can be run from the command line of DOS with output of errors (and line numbers) using standard DOS output. I don't know yet how large the program is so I don't know if it will be an Edisc or RAM problem. Rumor has it that it will require 256k+ to run and the program will be around 100k.

It has a number of good additions when compared to the existing compiler. It can handle files greater than 64K; object files can be linked to it; there is no need for a separate 8087 version (apparently you can detect the presence of the 8087 chip and switch inside the program between an 8087 library or an 8087 emulator during run-time); it removes unused code; and the compiler is more efficient, producing faster, more compact code.

My guess is that Portable users won't be able to use it very well due to the RAM/Edisc requirements and the fact that a separate editor is required. Portable Plus users with 512k+ RAM will be able to use it fairly well with a separate editor such as The Editor. See ya...

Paul

NEWS FROM



Personalized Software

Products that make HP Portables smarter

P.O. Box 869, Fairfield, Iowa 52556 515 472-6330

By Hal Goldstein

New Products

HPDUETTE

If you have ever wanted to transfer Portable Plus data to or from an IBM PC or AT compatible without an HP-IL link card, we have good news. Thanks to the urgings of our readers, of Hewlett Packard, and of *The Portable Paper*, Platte River Associates have modified their program Duette to run on the HP Portable Plus.

Just connect one end of the serial cable that comes with HPDuette into the nine-pin serial port in back of the Portable Plus. Plug the other end into the serial port in back of your PC or AT compatible. Run the HPDuette on the Plus (from your Edisc, HP9114 disk drive, or EPROM backup). Run the other half of HPDuette on the IBM.

The program is as easy to use as the HPLink card. You don't even need the manual to initiate fast 57,000 Baud data transfer. The program takes about 64K of disk space and retails for \$99.95—and for \$89.95 to *Portable Paper* subscribers. (For a reader review of the product and an ad, see other parts of this issue.)

Thanks to some help from Paul Grimmer at Southern Software, we will be able to shrink the HP half of the program so that it fits on a 64K EPROM backup chip for the normal \$95 backup fee.

HP110 users—there is still hope. We have to convince Platte River Associates that there is enough of a market for them to devote the engineering resources to produce an HP110 version and keep the price the same. If you can commit to buying an HP110 version give us a call or drop us a note—be sure to indicate that you want the HP110 version when developed. Alternately, you can bug Dr. Jay Leonard of Platte River Associates directly by calling (303) 469-7765.

CARBON COPY PLUS

Portable Plus users: at last there is an easy-to-use full-featured communications package alternative to Reflection 1. Thanks to a large corporation who ordered Carbon Copy Pluses for their sales reps using Portable Pluses, Meridian Software produced a version of this IBM PC program to run on the Portable Plus. We have not received a copy of the program yet, but we hear good things.

Carbon Copy Plus can be used in two ways. First of all, it functions as a terminal so that you can log onto information services like CompuServe or MCI or onto your home or office computers. From the reviews I have read and Meridian Software's literature, the program is easy to use,

and it is simple to transfer files back and forth.

Carbon Copy Plus really shines when both communicating computers are running the program. Those of you who have used HPLink cards connecting your IBM PC compatible with a Portable will be at home with this software. One computer runs a master version of Carbon Copy Plus and the other the slave version of the software. The master computer lets you run remotely the computer loaded with the slave program—as easily and completely as if you were seated at its keyboard. This is similar to running HPLink on your Portable where the PC is the master and the Portable the slave.

The other interesting thing about Carbon Copy Plus is that both the master and slave versions are memory resident. That means you can, for example, write a response to electronic mail in your normal word processor and then send it by invoking Carbon Copy. Carbon Copy Plus represents the first memory resident program (Shelp is actually a device driver) that has been ported successfully to the Portable Plus. This meant quite a bit of extra, unforeseen work from the Meridian Software people. The only restriction is that Carbon Copy Plus must be run from DOS not PAM. As soon as you exit to PAM, you must restart Carbon Copy Plus.

If you do run Carbon Copy Plus on both ends, you are required to purchase a second version. To that end Carbon Copy Plus won't work if it tries to talk to a version with the same serial number. If we put the program on ROM, this is a point that will have to be worked out with the manufacturer since the cost of a ROM version would rise dramatically if we have to burn a new version for each version of Carbon Copy Plus sold.

Based on my conversation with the programmer, on the literature from Meridian Software, and on the highly favorable reviews in other publications, we are going to put Carbon Copy Plus on our price list. (InfoWorld reviewed it on May 11, 1987 and gave it 8.3 points out of 10, which is very high for an InfoWorld review.)

We have been told that Meridian Software will be shipping the Plus version November 1. For those who order the 2400 Baud WorldPort modem, a free copy of the IBM version of Carbon Copy Plus is included. The retail price for the Portable Plus version of Carbon Copy Plus is \$225. Subscribers can order it for \$199.95 by using the order form in back of the issue. Meridian Software is located at 1101 Dove St., Suite 120, Newport Beach, CA 92660, (714) 476-2224.

STATISTIX

Last issue in the letters section we published Brendan Kelly's minireview of a full-featured statistics program, Statistix. Our readership has responded enthusiastically to the news of the product, so we are adding it to our price list. It retails for \$169, and we will sell it to our subscribers for \$159. The program works on the HP110, Portable Plus, and HP150.

Which Extra Memory Option To Choose

Now that it is possible to add a megabyte (1024K) or more of memory to the Portable Plus, many of you have called us with questions about which option to choose. You also wondered if we think prices will continue to come down.

There are basically three choices to expand memory:

CONDOR 3

and
CONDOR, JR.**Database management made easy!**

If you have customer files, sales records, inventory, or lots of *anything* that you need to keep track of, you need a database management system (DBMS).

If you want a sophisticated DBMS that even a beginner can use, try Condor 3 or Condor, Jr.

Condor 3 runs on the Portable Plus, Portable Vectra, and HP150. Its smaller cousin, Condor, Jr., runs on the HP110 and Portable Vectra only. Both versions let you **set up a database in a single step**, simply by typing a picture of the input form right on your screen. You enter and modify data—or even revise the database structure—simply by typing right on the same form.

Unlike other database systems, you simply tell Condor **what** to do, not how to do it—and you tell it using simple, English-like statements such as LIST CUSTOMER BY NUMBER NAME STATE

AND COMPUTE TOT SALES.TOT DATE.

As a result, it takes only one fifth the time to compute, display, sort, search, or report on your data using Condor as compared with other database systems such as dBASE III. Most users find they can create and begin to use their first database within minutes after opening the package.

Condor 3 (but not Condor, Jr.) is a fully **relational** DBMS. That means you can use Condor 3 to compare, select, and combine data from two or more files. Condor 3 also lets you create your own custom report formats. (Condor, Jr. includes a LIST command for limited re-report writing.)

You can transfer data back and forth from Condor 3 to Lotus 1-2-3 print files

WHAT THE EXPERTS SAY:

"If you want a database you can use immediately (without even opening the manual) . . . Condor 3 is the DBMS to buy."

—Jim Morgan, Data Base Advisor

" . . . a textbook example of what a database management system should be."

—James Perotti, PC Magazine

" . . . for a straight database, I'll take Condor."

—Jerry Pournelle, InfoWorld

and other files not created by Condor.

Over 150,000 Condor programs are currently in use. We think the Condor people have done a fabulous job of packing an enormous amount of database power into an incredibly easy-to-use system. We urge you to try Condor 3 or Condor, Jr. at our risk today.

Condor 3 \$495.00

\$379.00 for Portable Paper subscribers

Condor, Jr. \$99.00

\$89.95 for Portable Paper subscribers.

RECOMMENDED FOR:		Condor 3	Condor, Jr.
HP110 Portable		•	•
Portable Plus		•	
Portable Vectra		•	•
HP150		•	
IBM PC and compat.		•	•

MEMORY REQUIREMENTS

Condor 3 requires only 128K of memory to run. The entire program, including the report writer, fits in less than 360K. Since each command is in its own file, you can save memory space by deleting any commands you don't need.

Condor, Jr. is even more memory-efficient: the main program is only 25K, and you add individual 10K programs for each function you wish to use.

the HP 1 Megabyte RAM Card, the SoftWord 2 Megabyte RAM card, and the SoftWord 1 Megabyte RAM—8 socket ROM card. Whichever option you choose, you will greatly expand your current system memory and electronic disk capacity.

If you choose the HP card, you most likely will replace your current memory drawer on the bottom of your computer, leaving the software drawer containing your ROMs in place. The current memory drawer contains either 0K, 128K, 256K, or 384K. When you replace your current drawer with the 1 Megabyte (1024K) drawer, you will gain **System Memory / Edisc** space. The gain will be the difference between 1024K and the 0K, 128K, 256K or 384K that you replaced. In addition, you will still have either the 128K, 256K, or 512K that was built into your Portable Plus.

So, for example, right now you might have 896K of **System Memory / Edisc** space. That would mean you have a 512K Portable Plus with 384K in your memory drawer. Alternately, you might have 512K of **System Memory / Edisc** space. If your memory drawer is not empty, than you probably have a 128K Plus and a memory drawer containing 384K of memory.

In the last example, if you put a 1 Megabyte RAM drawer in your 128K Plus, you would have 1024K + 128K or 1152K of **System Memory / Edisc** space instead of 384K + 128K or 512K.

The advantage of the SoftWord drawers is that you can build a system with even more memory. The disadvantage is the cost.

Instead of adding 1 Megabyte of RAM, you could add the SoftWord 2 Megabyte RAM card. Alternately, on your

128K Plus described above, instead of removing the 384K RAM drawer, you could remove the software drawer. Then you could replace it with a SoftWord 1 Megabyte RAM—8 socket ROM drawer. This would give you 1.5 Megabytes of RAM (1024K + 128K + 384K). In addition, you would still have room for 8 ROM sockets—room enough for Lotus, MemoMaker, Time Manager, Reflection, Webster, and RightWriter in ROM. The HP software drawer comes with room for 12 sockets.

For a complete explanation, a description of restrictions, and examples of what can be done with SoftWord drawers, see the two-page ad in this issue.

No matter which drawer you choose, installation is a snap. First you need to back up your files onto an external disk. Then remove the two screws on the end of your existing drawer. You may use a small flat blade or a Torque screwdriver. Slide out the old drawer and slide in the new. Put the screws back in. Touch the contrast key for a few seconds. Wait. Then format the A drive as requested by pressing **fl**. That's it!

I doubt seriously if either HP or SoftWord prices will come down significantly in the next year. The non-volatile RAM chips used are expensive. HP must have bought a great number of chips to afford selling the drawer for what it does.

The HP drawer retails for \$995. We sell it for \$795. The SoftWord 2 Megabyte drawer retails for \$2995; subscribers pay \$2695. The SoftWord 1 Megabyte RAM—8 socket ROM drawer retails for \$1995; we charge \$1695 to our subscribers.

Replacing the drawer yourself is simple no matter which drawer you choose.

At last! Graphics for the Portable and Portable Plus

by Hal Goldstein
President, Personalized Software

Paul Grimmer has done it again.

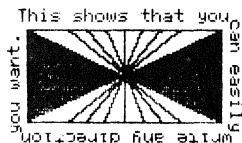
He's the author of two of our best-selling programs: SideWinder (the sideways printing program for the HP Portables) and LINK (the program that lets you transfer data back and forth between HP hand-helds and Portables, printers, and other peripherals).

Now he's developed SKETCH, a fabulous graphics program designed for both the HP110 Portable and Portable Plus.

CURSOR BECOMES DRAWING PEN

Using SKETCH couldn't be simpler:

Put SKETCH in *draw* mode, and your cursor becomes a "pen". The pen can either be "up" or "down." When it is "down," it draws wherever you move it. When it is up, you can move it around the screen without affecting the drawing. (You set the cursor up or down simply by pressing "U" or "D.") You also can set the cursor speed, and can toggle between a faster speed and a slower



speed in an instant.)

The pen also has an "eraser": Just press "E," and when the cursor is down it will erase whatever it encounters.

DOZENS OF HANDY FEATURES

But that's just the beginning. SKETCH also lets you draw diagonals, boxes, circles, and arcs—each with a single key.

(If you have a mouse, you gain even more convenience: Move the mouse in any way you want, and the cursor follows instantly. See ad on the Logitech Mouse for the Portable Plus in this issue.)

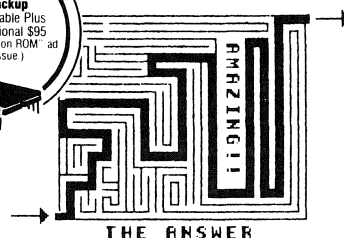
SKETCH also lets you fill closed shapes with light or dark solid—or even invert the entire screen (light areas become dark and vice-versa)—with a single keystroke.

With SKETCH, you can create text in any of 5 different character sets and place the text anywhere in your drawing—including sideways or even upside-down.

SKETCH lets you save part or all of any drawing for future use, or you can print directly from the screen onto your ThinkJet or QuietJet pages.

RECOMMENDED FOR:	
HP110 Portable	•
Portable Plus	•
Portable Vectra	
HP150	
IBM PC and compat.	
Available on ROM Backup for the Portable Plus	

Now available on ROM Backup for the Portable Plus for an additional \$95 (See Software on ROM ad in this issue.)



You can also import graphics screens into SKETCH from Lotus or any other graphics program.

SKETCH doesn't limit the size of your drawing area to the size of your screen. The total drawing area is 70% bigger than the screen on the Portable Plus, and more than 150% bigger than the screen on the Portable. As you move the cursor past your screen's borders, SKETCH automatically shifts you into the areas that were off-screen.

Now you might be expecting that all these great features come at a high price in terms of memory space. But they don't. The entire program takes up only 44K! (As I said, Paul Grimmer of Southern Software has done it again.)

USING IS BELIEVING

No matter how fired up you might get by reading about SKETCH or looking at the few samples we've shown of what it can do, there is no substitute for actually getting your hands on this wonderful program and trying it out for yourself.

Remember, with our money-back guarantee, if you are not completely satisfied with SKETCH within 60 days, you can return it for a full refund. Why not order a copy today?

SKETCH graphics program \$80.
\$75.95 for Portable Paper subscribers.

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ROM News

NEW ROM OFFERINGS

HP Calculator

We will be offering two new ROM backups. The first is the HP Calculator program that we give away on the 1987 Subscriber's disk. Many users really like this program which appears like an HP Calculator on the Plus screen. It has many mathematical, statistical, and financial options that are contained in several HP calculators. It works especially well using the Logitech mouse. The cost for this 64K EPROM is \$95. No other purchase is necessary since the disk-based version was free.

HPDuette

The Portable Plus side of HPDuette, the new serial file transfer program, is available on a 64K EPROM backup for \$95. The other, IBM half, of the program must be loaded independently on an IBM PC. If there is sufficient demand, we can probably put the IBM half of the program on a second EPROM. However, users must then figure out a way of transferring the IBM half to the IBM so other files can be transferred.

This is a ROM backup so the disk-based version of HPDuette must first be purchased (\$99.95 or \$89.95 to subscribers). See the review and ad in this issue for more information.

ON THE ROM FRONT

WordPerfect On ROM

Many, many of you have requested that we put WordPerfect 4.2 on ROM. Here is the good news and the bad news.

The good news is that the WordPerfect Corp. gave us

permission to sell both a Portable Plus ROM backup version and an HP150 version that uses the HP, IBM PC emulator. The bad news is that the main version of 4.2 is about 11K too big to fit on two 128K ROMs. According to the Portable Plus technical reference manual, 256K is the maximum size for a program. Similarly, the speller and thesaurus are too large to put on additional ROM chips.

Reader Dr. Sergio Biguzzi has been in contact with WordPerfect, asking them to produce a version just a little bit smaller. WordPerfect says that it may be available at the end of the year, but all their resources are dedicated to putting out WordPerfect 5.0. (From what I gather, I doubt if that version will work on the Plus. I also rather doubt that WordPerfect will want to produce a smaller version of 4.2—but it is possible if we can commit to a certain number of orders.)

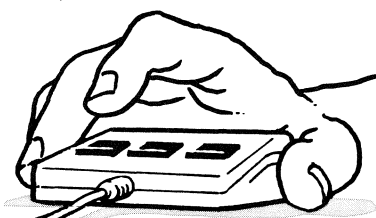
The other obstacle for putting WordPerfect on ROM is the fact that we must order 500 pairs of 128K chips to get one copy—and our costs for those 1000 chips have risen. Therefore, we need to sell close to 100 pairs to cover our costs.

One solution to the size problem is to burn version 4.1 into ROM. There really is not that much difference between 4.2 and 4.1, and for many users it might be worth giving up a few features to get the product in ROM. If a major company can commit to ordering 60 or more WordPerfect 4.1's from us—on disk and on ROM—and WordPerfect lets us burn a previous version of their product, then we can probably go ahead.

Milestone On ROM?

We have taken a preliminary look at the possibility of putting the Milestone Project Manager on two 64K ROM

Top-rated mouse adds convenience (and fun!) for Portable Plus users



Move a mouse around on your desk and the cursor moves around the screen. It's easier than cramping your fingers on the arrow keys—especially if you move the cursor around a lot (with Lotus, say, or with your word processor). For creating freeform graphics, a mouse is a must.*

The best mouse we know of is also one of the least expensive.

EDITOR'S CHOICE

It's the LOGITECH MOUSE (model C7 from Logitech, Inc.), and it runs beautifully on the Portable Plus when coupled with a PORTABLE MOUSE SOFTWARE program developed exclusively for us by Bill Saltzstein. The LOGITECH MOUSE was rated Editor's Choice by *PC Magazine* (January 27, 1987).

3 BUTTONS—EASY TO CUSTOMIZE

The LOGITECH MOUSE offers high resolution, precision tracking, and a convenient 3-button design. (The Microsoft mouse, which

sells for \$100 more, only has two buttons.)

With our PORTABLE MOUSE SOFTWARE, you can assign a different keystroke to each of the buttons. You can also assign a different set of three keystrokes for each of your applications.

Our PORTABLE MOUSE SOFTWARE also lets you control the distance that the cursor will move for a given movement of the mouse.

TRY IT AT OUR RISK

Not sure you'll like using a mouse with your Portable? The only way to find out is to try one. Remember, you can order any product from us, use it for 60 days, and then return it for a full refund if you are not completely satisfied.

Order a Logitech or Microsoft mouse for your Portable

Plus, risk-free, today. (Don't forget to order our PORTABLE MOUSE SOFTWARE and cable too; you'll need them to run either mouse with your Portable Plus.)

Portable Plus Mouse Systems

(Logitech Mouse, Portable Mouse Software, Cable) **\$219.00.**
\$179.95 for Portable Paper subscribers.

For pricing of individual components and Microsoft Mouse, see "Additional Products" opposite the order form in this issue.

A WORD ABOUT THE MICROSOFT MOUSE

The Microsoft mouse has only 2 buttons, but costs \$100 more than the 3-button Logitech mouse. Nevertheless, the Microsoft mouse may be your best bet if you want the IBM PC-compatible graphics software it comes with.

If you already own a serial Microsoft mouse—or would like to buy one—there's no need to buy the Logitech Mouse as well; to use the Microsoft mouse with your Portable Plus, all you need is our Portable Mouse Software and a cable to connect the mouse to your Plus.

60-DAY MONEY BACK GUARANTEE

See order form for details.

TO ORDER

Use postage-paid order form inside back cover or send check or credit card information (#, exp. date, signature) to:

Personalized Software

P.O. Box 869, Fairfield, IA 52556 515/472-6330

RECOMMENDED FOR:

HP110 Portable	Portable Vectra	•
Portable Plus	HP150	•
IBM PC and compatibles		•

*See ad for Sketch, the graphics program for the Portable Plus, in this issue.

Copyright 1987 Personalized Software

chips. It should be possible, but there is at least one problem: When Milestone starts it asks for today's date and your name; when you exit from Milestone, it tries to write this information to itself. Since ROM is Read-Only-Memory, the attempt to write fails and you get the message: **Write protect error writing drive B Abort, Retry, Ignore?**, and your only viable option is to press A for Abort, thus preventing Milestone from saving this information. If there is sufficient interest in putting Milestone on ROM despite this limitation, we will be happy to look into the matter further. The cost for the two 64K EPROM backup chips would be \$145.

We'll Put Our ROMs in Your Drawer

When we sell ROMs, we send them inside a ROM installation device with clear instructions for installation. It is not difficult and may take you a half an hour if you have not done it before. However, if you prefer, we would be happy to install the ROMs for you.

You can send us your Portable Plus, and we'll install the ROMs and send it back the day after we receive it. An easier solution is for you to send us your ROM drawer.

To send us your ROM drawer, first, back up your A drive. Then, just take out the two screws on the side of the ROM drawer and slide out your ROM drawer. Pack the ROM drawer well and mail it to us with \$28 to cover overnight shipping back to you and our labor costs. We'll insert your ROM order in your drawer and ship back your unit the day after we receive it. However, call first so that we know it is coming and to insure that we have your ROMs in stock.

If you want to send us your whole Plus, you'll need to

send us \$58 to cover costs and overnight shipping.

Price Reductions

TURBO PASCAL

Borland International recently announced version 4.0 of Turbo Pascal. They are not offering a version for HP machines. We will be investigating the possibilities of getting at least some of 4.0 to run on the Portables.

In the meantime Borland still makes 3.0 for HPs available and has lowered the price from \$99.95 to \$69.95. We will sell it to subscribers for \$65. They have also kept the HP Turbo Tutor version priced at \$39.95 (\$35.95 for subscribers) even though they raised the price of the IBM version. (Our version of both programs includes extra disks customized for the HP Portables.)

Our Turbo starter kit, which includes Turbo Pascal, Turbo Tutor, and Pascal Programs for the Portables, has been reduced from \$159.95 to \$139.95.

HP9114 EMPOWERER

The Empowerer allows you to run your HP9114 off normal AC current instead of from its battery. We found a new supplier and have been able to lower the cost significantly. The Empowerer formerly sold for \$145—and for \$129 to subscribers. Now it sells for \$99.95—and for \$89.95 to subscribers. We have discontinued selling the battery option.

Disk Conversion

HP users must contend with many different formats and disk sizes, especially if they want to be compatible with the IBM PC world. For those needing the service, we will be

Add Megabytes of RAM—and ROM—inside your Portable Plus!

Leave that bulky disk drive in your closet! Now your 9-pound Portable Plus is all you'll ever need to run your programs and access your files!

With the advent of the Portable Plus, Hewlett-Packard solved almost every problem of computer portability. The machine is rugged, weighs only 9 pounds, stores software on ROM chips, and has non-volatile memory.

But as every user knows, the Plus has one major drawback: limited memory space. Until now, if you needed even a modest amount of space for data files and application programs, you were forced to carry an external disk drive wherever you went.

Now all that is changed. Because now you can boost your Portable Plus's memory by as much as 4 megabytes. How? Simply by installing special 1- or 2-megabyte RAM cards in the bottom of your Portable Plus.

MEGABYTES PER CARD

The RAM cards have been developed by SoftWord, of Surrey, England. As SoftWord's exclusive U.S. distributor, Personalized Software is currently offering two kinds of cards:

- **2 Megabyte RAM Cards**
- **1 Megabyte RAM/ROM Cards** containing 1 megabyte of RAM and 8 sockets for ROM chips. Each ROM socket can hold up to 128K of data or software on ROM.

"A" DRIVE AND "C" DRIVE

Each kind of SoftWord card comes in two different varieties: "A-drive" and "C-drive." The difference lies in how the RAM memory on the card is used in your system:

RAM that's on an *A-drive Card* becomes part of your Portable Plus's main—Edisk memory (the internal memory you partition using the P.A.M. System config menu). RAM that's on a *C-drive Card* doesn't affect your Plus's main/Edisk memory; instead it functions as electronic disk storage, just as

though it were an external disk drive. (Usually it will be the C drive, but if you have an HP9114 plugged into your system, the memory card becomes the D drive.)

EASY TO INSTALL AND USE

At the bottom of your Portable Plus, there are two compartments designed to hold HP's RAM and ROM expansion

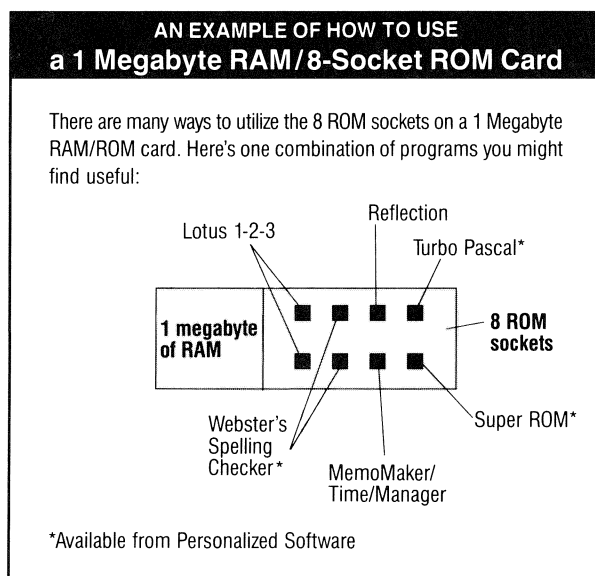
figuration will either be the one in Example 2 or Example 4.)

Note: If you only purchase *one* SoftWord card, we recommend you get the C-drive variety rather than the A-drive variety. There are three reasons for this:

1. If you reset your Portable Plus using the Battery Reset button, you will lose whatever is in the A-drive memory, but what's in the C-drive memory will be retained.
2. A C-drive Card allows you to utilize whatever extra RAM drawer memory you may already be using for your A drive (see Example 1); by contrast, a 2 Megabyte RAM A-drive Card must be used *in place* of an existing RAM drawer.
3. With a C-drive Card in your system, you have, in effect, two built-in disk drives—the A drive, and the C drive that's on the card. By storing copies of critical data and programs on *both* drives, you protect yourself against disaster if your A drive becomes corrupted (which, as you may know, can happen).*

WHOLE NEW MACHINE

The minute you install your new SoftWord card(s), your Portable Plus becomes an entirely new machine. You'll be able to run large applications like WordPerfect or RightWriter—or even an entire integrated package like T/Master—and still have plenty of room left over to manipulate large



drawers. Any of the SoftWord cards can be installed in either of these two compartments. All you do is remove whatever drawer may be in there and replace with a SoftWord card.

Note: We will accept your old RAM or ROM drawer and any extra memory as a trade-in towards purchase. Please call for current trade-in prices.

Once installed, the extra RAM on the SoftWord cards works exactly like ordinary Portable Plus memory, only there's lots more of it.

HOW TO CHOOSE

The examples in the box at the far right will help you examine your options. (For most users, the ideal con-

*There is one potential drawback to using a C-drive Card: You cannot directly back up your C drive to an IBM PC or HP150 that has an HP-IL interface card if the PC or 150 has a hard disk of more than 10 megabytes. (In such cases, you can back up your C drive to an external disk drive or to your A drive, and then copy your files to the PC or 150 from there.)

data files, *all without the need for an external disk drive.*

In addition, you'll enjoy the faster access time that comes with RAM storage, and the convenience of not having to hassle with disks all the time. (You should, of course, continue to use disks to back up your files occasionally as a safety measure. So don't bury your disk drive *too* far back in your closet!)

DOUBLE GUARANTEE

SoftWord's RAM cards are manufactured to extremely high standards by a company in the Netherlands that has more than seven years of experience in designing and fabricating memory expansion devices for Hewlett-Packard hand-helds and portables. Reliability is assured by extensive testing.

All SoftWord cards come with a one-year manufacturer's warranty covering parts and labor. Should a problem develop, simply send the card to us, and we will ship it to and from SoftWord at our expense.

In addition, the cards are covered by our own money-back guarantee: If you are not satisfied with a SoftWord card, you can return it within 60 days for a full refund.

By boosting your Plus's memory into the megabytes, you gain the ultimate flexibility in portable computing. Order one or more SoftWord cards, risk-free, today.

2 Megabyte RAM A-drive Card or C-drive Card \$2995.
\$2695 for Portable Paper subscribers.

1 Megabyte RAM/ROM A-drive Card or C-drive Card \$1995.
\$1695 for Portable Paper subscribers.

IMPORTANT: Be sure to specify "A-drive Card" or "C-drive Card" on the order form.

TO ORDER

Use postage-paid order form inside back cover or send check or credit card information (#, exp. date, signature) to:
Personalized Software
P.O. Box 869, Fairfield, IA 52556 515/472-6330

Non U.S. Customers:

Please order directly from SoftWord. Here is their full product line and price list (prices include shipping and insurance):

384 RAM Card £575
1/2 Megabyte RAM A-drive Card or C-drive Card . £800
(Upgrade to 1 Megabyte) £500
1 Megabyte RAM A-drive Card or C-drive Card . £1200
2 Megabyte RAM A-drive Card or C-drive Card . £1800
1 Megabyte RAM/ROM A-drive Card or C-drive Card £1200

UK residents please add Value Added Tax at the applicable rate.

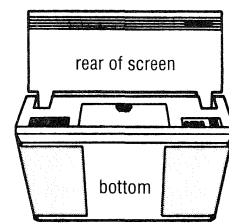
SoftWord, Astage, Rectory Lane, Windlesham, Surrey, GU20 6BW, England. Telephone: National: Bagshot (0276) 75440. International: +44276 75440

Adding Megabytes With Memory Expansion Cards

Here are some ways you can use SoftWord's A-drive Cards and C-drive Cards to expand the capacity of your Portable Plus:

(Note: 1 megabyte = 1024K)

Portable Plus rear view



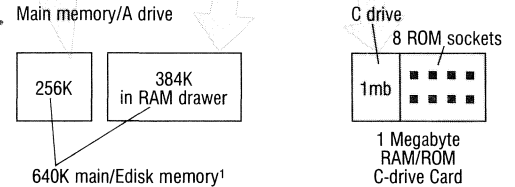
Portable Plus's built-in memory

Compartments at bottom of Portable Plus

EXAMPLE 1: 1.64 megabytes

1 Megabyte RAM/ROM C-drive Card installed in a Portable Plus having 256K of built-in memory and 384K of extra memory purchased from HP.

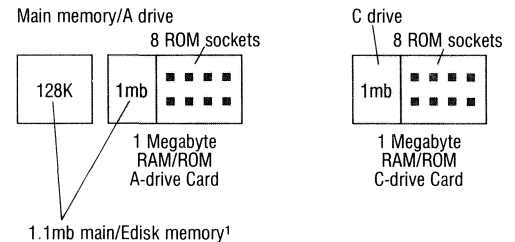
Gives you: 640K of main/Edisk memory, 8 ROM sockets, and an additional 1mb of C-drive storage.



EXAMPLE 2: 2.1 megabytes

1 Megabyte RAM/ROM A-drive Card and 1 Megabyte RAM/ROM C-drive Card installed in a Portable Plus having 128K of built-in memory. (Recommended for users who may need more than 8 sockets filled with software on ROM.)

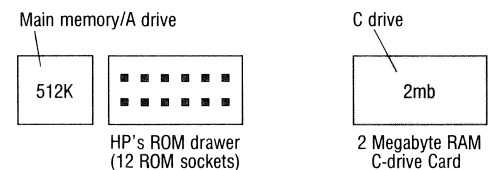
Gives you: 1.1mb of main/Edisk memory, 16 ROM sockets, and an additional 1mb of C-drive storage.



EXAMPLE 3: 2.5 megabytes

2 Megabyte RAM C-drive Card installed in a Portable Plus having 512K of built-in memory and HP's ROM drawer.

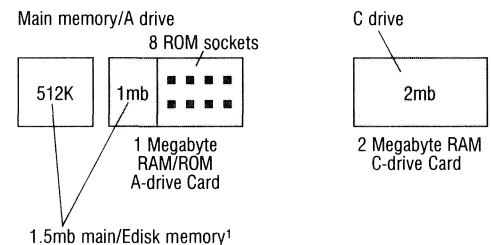
Gives you: 512K of main/Edisk memory, 12 ROM sockets, and 2mb of C-drive memory.



EXAMPLE 4: 3.5 megabytes

1 Megabyte RAM/ROM A-drive Card and 2 Megabyte RAM C-drive Card installed in a Portable Plus having 512K of built-in memory.

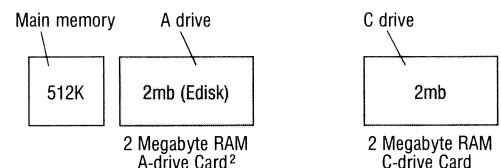
Gives you: 1.5mb of main/Edisk memory, 8 ROM sockets, and an additional 2mb of electronic disk storage.



EXAMPLE 5: 4.5 megabytes

2 Megabyte RAM A-drive Card³ and 2 Megabyte RAM C-drive Card installed in a Portable Plus having 512K of built-in memory.

Gives you: 512K of main memory and an additional 4mb of storage. (No ROM sockets are available in this configuration.)



¹ Can be partitioned in any ratio in normal manner, with maximum main memory of 512K.

² A 2 megabyte RAM A-drive Card will only work in a Portable Plus having 512K of built-in memory. In the Portable Plus, 2.5mb of main/Edisk memory can only be partitioned as 512K main memory, 2mb Edisk.

happy to convert disks from one format to another for \$9.50 per disk if you supply the formatted destination disks. The one restriction is that the source disk cannot have more data on it than will fit on a single destination disk. For example, to convert a 3-1/2" double-sided HP disk to a 5-1/4" IBM format, the 3-1/2" disk cannot contain more than 360K of data.

If you do not want to supply the formatted destination disk, then you must add the following to the \$9.50 charge, depending on the type of destination disk: 3-1/2" single-sided (260K)—\$3; 3-1/2" double-sided (700K)—\$4; 5-1/4" IBM (360K)—\$2; 3-1/2" high density (1.44M)—\$6. Add the following shipping charge per order: UPS ground—\$2; UPS 2-day air—\$4; overnight rush—\$15.

Our Fall Catalog

By now you should have received our Fall catalog with over 50 products for the Portables. If you didn't get a catalog, or if you want more to share with others—just give us a call.

Portable Equipment Exchange

WE SELL NEW HP EQUIPMENT AND SUPPLIES—EVERYTHING IN STOCK

Personalized Software, by special arrangement with Hewlett Packard and a local HP dealer, is now able to sell new HP equipment. We sell all HP calculator and microcomputer equipment and supplies at a 10% to 25% discount. However, we specialize in HP Portable equipment and supplies. Accordingly, our dealer will stock HP Portable Pluses, HP Portable Vectras, ThinkJets, LaserJets, HP9114's, and all of those hard-to-get supplies, software, and ROMware for these portable computers and peripherals.

We want to be the only place you shop for HP Portable equipment. Remember, we take your used Portable and HP150 equipment in trade. See the four-page insert with this issue of *The Portable Paper* or call (515) 472-6330.

WE BUY AND SELL USED HP EQUIPMENT

HP equipment is well-built and lasts for years. We will purchase your used equipment or take it as a trade-in when you purchase new equipment from us. We sell used equip-

ment that is in good to excellent condition—offering you a 30-day money-back guarantee if you are dissatisfied. See the four-page insert with this issue of *The Portable Paper* or call (515) 472-6330.

B Drive —Built in Software in ROM

MultiMate B PLUS

MultiMate 3.31: A Professional Word Processor for the Portable Plus

By D. Hughes

DESIGNED FOR SERIOUS WRITING

Fortune 1000 companies consider The MultiMate Professional Word Processor a word processing standard. The Processor has a reputation for being friendly, clean, reliable, and hard-working. Managers find it easy to use and master for word processing tasks. And in the hands of the serious writer, MultiMate is a powerful tool.

FUNDAMENTAL CONCEPTS

Two fundamental concepts guide the design of today's word processors: document orientation and page orientation. Document-oriented word processors treat your file as one continuous scroll. Page-oriented word processors treat your file as a series of discrete pages.

Document-oriented word processors may load the entire document into the computer's available memory, or, if there is insufficient space, page the document through a file buffer. They may automatically display page breaks (i.e., WordStar and WordPerfect), or wait until you number the pages (i.e. Microsoft Word).

MultiMate, unlike its document-oriented competitors, is page-oriented. It holds only one page of your document

Convert your data for just \$9.50 per disk!

Send us your source disks and formatted destination disks, and we will copy the former onto the latter for just \$9.50 per disk.

If you'd rather have us supply and format the destination disks, the costs are listed at the right.

Note: A source disk cannot have more data on it than will fit on a single destination disk. For example, to convert a 3 1/2" doubled-sided HP disk to 5 1/4" IBM format,

the 3 1/2" disk cannot contain more than 360K of data.

To order, write clear instructions on the order form in back of this issue or on a separate piece of paper.

Please include the following amounts for return shipping. (Amounts are *per order*; not per disk.)

UPS Surface \$2.
UPS Second-Day Air \$4.
Overnight rush, next day delivery .. \$15.

Type of destination disk	Cost including disk, formatting, and conversion service
3 1/2" Single-sided HP (260K)	\$12.50/disk
3 1/2" Double-sided HP or IBM (700K)	13.50/disk
5 1/4" Double-sided IBM (360K)	11.50/disk
3 1/2" High-density HP or IBM (1.44mb)	15.50/disk

in memory at a time. If you start a new page or go to another page, MultiMate first saves the page you're currently using and then retrieves the new page. The document file remains closed unless a page change is requested by the system or by you. This may seem a rather disjointed way to do word processing in a the fast-paced business world. However, page orientation offers the greatest safety in the event of a power failure. There is little chance of losing your document.

USEFUL TOOLS FOR THE WRITER

If safety isn't enough to encourage you to investigate this product, perhaps MultiMate's many powerful features and menu-driven user interface will.

MultiMate's user interface is completely menu-driven. This may turn off some users who prefer a modeless word processor (a la WordStar), but the MultiMate system is not cumbersome. The menus are intended for non-editing chores such as printing, file handling, print merging, spell-checking, and system-default changing. You can consider MultiMate a "clean-screen" word processor, since it consumes only two lines of the display for messages, essential document information, and modifier key status. The remaining twenty-three lines of display are for text. You use function keys, but they aren't displayed. The package includes two colorful keyboard overlays.

You can very easily perform basic editing tasks, such as copy, move, insert, delete, search, and replace, with MultiMate's many powerful, standard editing features. You initiate these commands in a deliberate and controlled manner and thus prevent mistakes. It is possible to "undo" an editing command before it is carried out. And help is only a keystroke away.

MultiMate supports more than 200 different printers. Not only can you have fixed spacing with fixed fonts and proportional spacing with proportional fonts, but you can also have proportional spacing with fixed fonts. In addition, you can enhance your text with multiple-line headers and footers, print merge, and printer enhancements such as subscript, superscript, bold, underline, shadow, and enhanced text.

The advanced features of MultiMate help both the novice and professional writer. You can merge data from random or sequential data files with the Merge command. You can access the Printer Queue, which supports delayed printing, from anywhere in the program. I use the delayed printing feature to increase my productivity by scheduling all print jobs during lunch and afternoon break, when I am away from the computer. MultiMate's spelling checker highlights each misspelled word with a flashing place mark. The spelling editor searches for and corrects the misspelled words. You can even spell-check a single word, sentence, paragraph, or block.

MultiMate features keyboard macros (key procedures) and an "alternate" keyboard. I use the macro facility to schedule print jobs and automatically reformat documents. Since MultiMate supports the IBM (not HP) character set, you can use the IBM extended character set to enhance your text with math symbols and line drawings.

INCREASE YOUR PRODUCTIVITY

If you are a prolific writer and can fill a 20 Mb fixed disk

in a year, you'll appreciate MultiMate's document summary screens and library functions. They help you stay organized and in control.

Document Summary Screens identify pertinent information about the creation and contents of every document. Since MultiMate supports up to 20 characters in the document name, you can easily implement an advanced cataloging scheme. There are fields for author's name, addressee, operator, key words, and comments. The system records statistical information such as creation/revision date, time editing (total/session), and keystrokes.

Libraries are special files which store up to 128 entries of frequently used text. Each library entry is limited to one page and is instantly recalled and inserted into your document with a three-character mnemonic. Unlike Microsoft Word's glossaries, which are loaded into memory, MultiMate's libraries are simply attached to the document you're editing. It is also possible to add, delete, edit, and print library entries. And you can leave all your libraries on an external disk drive and save Edisc space.

ADVANCED POWER TOOLS

The Advanced Utilities enable MultiMate to share information with other programs; this gives MultiMate an edge over other popular word processors. The Advanced Utilities features several important tools: the Printer Tables Editor, Key Procedures Editor, Document Recovery, and File Conversion.

You can use the **Printer Tables Editor** to develop new printer drivers and character width/translation tables for non-supported printers and sheet feeders, or to modify existing printer drivers. It is easier to use than the Microsoft Word or WordPerfect printer tables editor.

The **Key Procedures Editor** allows you to view, modify, or create MultiMate key procedures, or macros. It is probably easier to create a key procedures macro from within MultiMate than from the Editor; nevertheless, it is a utility that may be useful in editing complicated macros.

Document Recovery attempts to recover lost or damaged pages of your document in the unlikely event of a system crash. It also attempts to restore the file header of your document if you have a temporary loss of power.

File Conversion provides a comprehensive set of conversion tools which allow you to easily share MultiMate files with other word processing systems, databases, and spreadsheets. It supports the following conversions:

DCA: Permits transfer to/from the DCA (Document Content Architecture) revisable format file commonly used by many IBM office systems, including the DisplayWriter dedicated word processor.

WANG: Permits transfer to/from dedicated Wang Professional Word Processors and Wang Professional Computers.

123: Permits a one-way transfer from a *.wks or *.wk1 worksheet file 123 directly to a MultiMate document.

DIF: Permits a one-way transfer of data from the DIF (Data Interchange Format) to the MultiMate document format.

COMM: Converts a MultiMate document to an intermediate 7-bit format for transmission through a modem without using any protocols. When the MultiMate document is translated at the other end, all formatting and function characters are preserved.

In addition to these formats, File Conversion provides VCDIF (Visicalc Data Interchange Format) and ASCII conversions.

CONCLUSIONS AND RECOMMENDATIONS

Today's word processors offer many enhancements and refinements that can dilute the true flavor of the product. It is wise to match your needs with the capabilities offered by a program. The choice is often subjective—since one word processor can “feel” better or more comfortable than another. It's your decision!

MultiMate is businesslike, yet a pleasure to use. It offers considerable productivity and power, and rivals other word processing products currently available for the Portable Plus. Because of its many enhancements, file handling, speed, and extensive printer/file format support, it may be the best word processor available for the Portable Plus.

MultiMate Verses MSWord

By Mike Steed

I am primarily a MemoMaker user because almost everything I do will be sent via electronic mail and needs to be in plain ASCII form. Since my attachment is to MemoMaker, perhaps the following comparison of MultiMate and MS Word, word processors for the Portable Plus, will be more objective.

MEMORY REQUIRED: MS Word 140K, MultiMate 152K (despite its being executed directly from ROM.)

VERSION: MS Word 1.1 (old, lacks outliner and many other features), MultiMate 3.31 (relatively up-to-date). The former has been customized by HP to have function key operation; the latter uses Alternate (IBM) mode and is very similar to the IBM version.

EASE-OF-USE: I wouldn't call either program easy to learn or use because of their many features. The two keyboard maps on MultiMate are essential. The menus and function keys on MS Word make startup a little easier, but the “chinese keyboard” user interface on MultiMate is probably faster for the frequent user.

POWER: Both are at their best doing fancy fonts on a LaserJet, though I consider MultiMate slightly better. MS Word does have a way, albeit less than ideal, of snaking text through multiple columns; our version of MultiMate does not. But MultiMate implements indentation and tabs better.

FILE CONVERSION: This can be a big issue, because both use their own file format. MultiMate comes with a separate conversion utility to handle all conversions, including IBM document interchange format. Unfortunately this utility is prohibitively huge (around 200K) for routine ASCII file conversions. MS Word can easily import ASCII files, and it outputs them by one of two imperfect methods: You can save a file as unformatted so word-wrapped paragraphs become single long lines, or you can print a file through the PLAIN printer driver, which adds blank lines at each page break. MultiMate has a TTYCRLF printer driver which works about the same way, but it also creates bold and underline by backspacing and retyping.

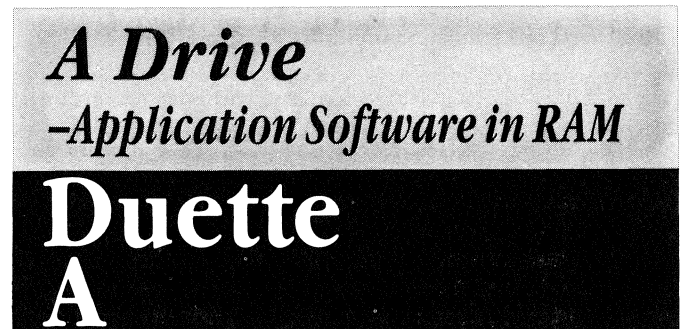
SPELLING CHECKER: MultiMate comes with a dictionary disk for its built-in speller; MS-Spell is a separate product.

SPEED: Both are fast. Since MS Word runs in graphics mode, the display sometimes lags and the Shelp utility

won't work.

POPULARITY: MultiMate is still the most popular, but MS Word is second, due in part to its early introduction.

RELIABILITY: MS Word has many minor annoyances and one major bug: the program aborts when you press the Tab key during printing or file access. Our data suggests MultiMate is much cleaner.



By Jim Scheef

What Is Duette?

Duette is a utility for transferring files at high-speed between a Portable Plus and an IBM PC compatible via the serial ports of both machines. How fast is high-speed? The test results shown below indicate that it is as fast as the HPIL card in copying files from a Portable Plus to an IBM PC. Is it the answer to all of your dreams? Probably not, but it has one absolutely fantastic feature: it works on the HP Portable Plus.

I must state here at the start that this review is based on a beta version of HP Duette. Platte River Associates has assured me that the production version will perform the same as the beta version. We've heard that before, but the changes the program needs before release are purely cosmetic. Also, a serial null modem cable is supplied with Duette. I did not have one of these, but instead used an HP cable.

Duette is easy to use

When I received the HP version, I wanted to try it as soon as possible. Being a typical computer professional, I never read manuals unless absolutely forced to. To my pleasure, I found that I was able to install both the IBM and HP versions of Duette, and transfer a file without opening the manual. “Intuitive” was the first word I thought of when using the program.

The first step in using Duette is to install it to fit the configuration of your computer. Unlike the normal IBM version of Duette, Duette for the HP includes two versions of the program. The differences in the PPlus serial port and screen make the second version necessary. Thus it is necessary to install the program twice, once on each machine. For the IBM version, the install program asks you to select either color or monochrome, COM1 or COM2, and the default transfer speed. On the PPlus, this is shortened to selecting the default transfer speed, selecting from turbo transfer mode (57,600 baud), standard (9,600 baud), or universal (1,200 baud).

The pure IBM version of Duette supports transfer

Whether you want to learn programming or you're a seasoned programmer, the best programming language for your HP Portable or Portable Plus is

Turbo Pascal

—and our Turbo Pascal Starter Kit is the best way to buy it!

Here's why.

The Pascal programming language was originally designed for use at the college level in teaching the fundamentals of computer programming. Borland International enhanced the language, making it practical for actual programming use. Their version is called Turbo Pascal.

Today, Turbo Pascal is the programming language taught at most universities. The reason is that its underlying structure fosters good programming habits. It forces you to think in a modular way: You create self-contained, well-defined units and put them together to make a full working program.

GREAT WORKING ENVIRONMENT

Turbo provides you with an exceptionally good programmer's environment.

One aspect of this is Turbo's built-in text editor. It's a sophisticated WordStar work-alike that in itself is worth the price of the program.

Another aspect is Turbo's compiler*. In addition to being uncommonly fast (an amazing 80-100 lines per second), it is also uncommonly helpful: If the compiler encounters a mistake in a program, it stops compiling, gives you an error message, returns you to the editor, and takes you to the place in your program where the error occurred.

The *external* environment for Turbo is also excellent: There are numerous books, articles, public domain programs, and even a CompuServe forum devoted to helping people use Turbo to full advantage.

With all these advantages and more, it's no wonder that Turbo Pascal is today's best-selling programming language for the IBM PC.

THREE-PIECE STARTER KIT CUSTOMIZED FOR THE PORTABLES

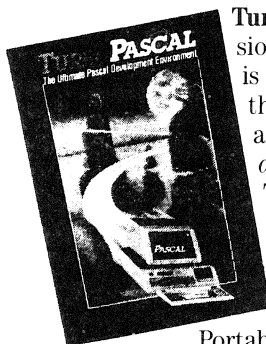
For Portable and Portable Plus users, there's yet another enormous benefit: *Turbo Pascal takes up less than 40K of memory*—and that includes its powerful

built-in text editor.

We are now offering Turbo Pascal in a special 3½" disk version for your* Portable or Portable Plus, ready to install from PAM.

Although you may purchase Turbo all by itself, we recommend our **Turbo Pascal Starter Kit**. It's ideal for novice and intermediate programmers alike.

The Starter Kit includes **Turbo Pascal**, Borland's **Turbo Tutor**, and our own special disk, **Turbo Pascal Programs for the Portables**. Here's a rundown on each:

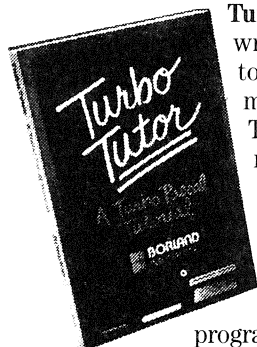


Turbo Pascal: Our version of Turbo Pascal is customized to both the HP110 Portable and the Portable Plus at no extra charge.

The customization, authorized by Borland, allows the Turbo editor to use all the normal

Portable editing keys (Extend Char—Delete Line, etc.).

This saves you from having to learn many of the commands particular to WordStar.



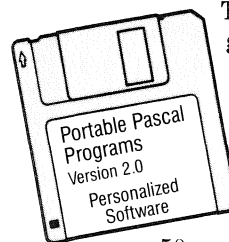
Turbo Tutor is a well-written, interactive tutorial that includes a manual and a disk. The manual covers not just the fundamentals, but many fine points of Pascal programming as well; it is of value even to advanced

programmers. The disk includes every example covered

in the manual, already keyed in and ready to use. (Note: neither the IBM version nor the HP150 version of Turbo Tutor will run on the Portables; only our 3½" disk version will.)

RECOMMENDED FOR:

HP110 Portable	•	Portable Vectra	
Portable Plus	•	HP150	
IBM PC and compatibles			



Turbo Pascal Programs for the Portables is a great supplement to Turbo Tutor.

Based on the principle of *learning by example*, the disk contains more than

50 sample Turbo Pascal programs, and every one of them runs on the HP110 or the Portable Plus. The programs range in length from ten lines of code to hundreds, and from simple (temperature conversion, games, arithmetic) to advanced (input/output, graphics, and more). Every program is included on the disk so you don't have to key in any of them—they're ready to run or to be incorporated into your own larger Pascal programs.

If you're into—or getting into—the highly productive world of programming, our Turbo Pascal Starter Kit will help you become an expert. Order your copy of this dynamite programming package at no risk today.

Portable Paper Subscribers:

The Turbo Pascal Starter Kit saves you \$30 off the price of the three products purchased separately.

	Retail price	Subscriber price
Turbo Pascal Starter Kit (includes Turbo Pascal, Turbo Tutor, Turbo Pascal Programs for the Portables)	\$159.85	139.95
Turbo Pascal	69.95	65.00
Turbo Tutor	39.95	35.95
Pascal Programs for the Portables	49.95	44.95
Turbo Pascal on ROM Backup for the Portable Plus**	95.00	95.00

*ROM Backup version includes RUN.COM, a utility program that can save 10K of disk space from any program you compile with Turbo. Note: You must own (or order) the disk version of Turbo in order to purchase the ROM Backup version. See ROM Backup ad in this issue for details.

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*Compiling a program means getting it to meet the rules of syntax imposed by the programming language. A program will not run until it can be compiled.

speeds up to 115,200 baud. However, Platte River found this speed unreliable on the Portable Plus, so the highest speed on the Portable Plus version is 57,600 baud. The very last question of the install program is whether you want to install Duette in the current directory. This is very convenient when installing from an HP9114. Start the install program from the C drive, and at the current directory question enter n(o). The program will then prompt for an alternate, which can be the A drive. The configured copy of Duette will be written to the PPlus Edisc.

The Serial Connection

Once the program is installed, the PPlus and the desktop computer must be connected through the serial ports on each machine. A null modem cable is supplied with Duette. For the PPlus, Platte River Associates plans to include a 9-pin 'gender changer' connector that makes the required pin conversions between the PPlus 9-pin serial and a 9-pin IBM PC/AT or 25-pin IBM PC serial port. This connector was not available for my testing so I used an HP cable that made the null modem connection.

Running Duette

Duette must be run on both machines. The user interface of both versions is identical as would be expected. The initial menu offers the choices of 'Send File', 'Receive File', 'File Commands', 'Configuration', and 'Quit DUETTE'. The menu interface is the Lotus-style sliding light bar with an explanation of the highlighted choice shown on the line below. A selection can be made by moving the cursor or pressing the first letter of the choice.

It is best to put the two machines next to each other so that the screens can be compared and selections made from each machine's menu. The keyboard on each computer is used to control that machine. The files to be transferred are selected on the sending computer from a listing of files in a single directory. Unfortunately, it is not possible to send files from more than one directory at a time.

The menu structure of Duette is logical and intuitive. 'Just follow your nose' to find the proper operation. Starting from the main menu, select 'send files', and that menu appears. From there all operations relating to sending files are performed. First, select the files to be sent from a directory listing. Individual files are selected by pressing the space bar. A subset of the directory may be shown by entering standard DOS wildcards. Function keys may be used to select or deselect the entire list of files shown. Once the files have been selected, the 'send' option puts the program in transfer mode. At this point the other computer should be in Receive mode and the file transfer can proceed. It's much more difficult to describe than to do (especially without pictures).

Benchmark Results

The table below gives the average results of my benchmark tests. So that others can check my results, I used commonly available files in these tests. The single file is the **nu.exe** (124K) from the Norton Utilities Advanced Edition. The multi-file transfers used all of the files on the 1987 Portable Paper Subscriber's Disk (approximately 258K). To eliminate disk drive speed as a factor in the tests, all transfers were to/from a ram disk on my IBM PC/XT which is souped up to 7.38Mhz (your mileage may differ) and runs a NEC V-20. HPIL transfers used the PC-DOS **xcopy**

command from the 1987 subscriber's disk to get the best possible results.

The results can be summarized by saying that Duette is faster than the HP-IL almost all of the time. In the fastest test, PPlus Edisc to PC ramdisk, Duette was as much as 14% faster. This is using the 57,600 baud turbo speed recommended by Platte River. Times are shown in Table I for transfers at the top speed from the PPlus to the PC with the files originating on both the 9114 and the PPlus Edisc. For some reason, this direction worked faster.

Error Checking

Duette was able to trap every error I threw at it and even caught me a few times. For example, you are warned if you are about to overlay a file of the same name during a transfer. Logic errors, such as trying to send files when no files have been selected, are also politely noted. In this area, I found Duette to be quite complete.

Is It Perfect?

Of course Duette isn't quite perfect. What would I change? After using the product for several days, I do have a wish list. First, since simple backup of the PPlus's Edisc will be a primary use of Duette in our environment, I would like to have the option to use the DOS archive bit to select files during a transfer. This would make daily backups to a desktop a matter of less than a minute. Since my PPlus has only 512K, a complete backup each time is practical, but for a PPlus with 2+ Megs of memory, an incremental backup would be much faster. The other major enhancement would be the ability to control both computers from one keyboard. It would also be nice if a PAM.MNU file were included to make use on the PPlus a little easier.

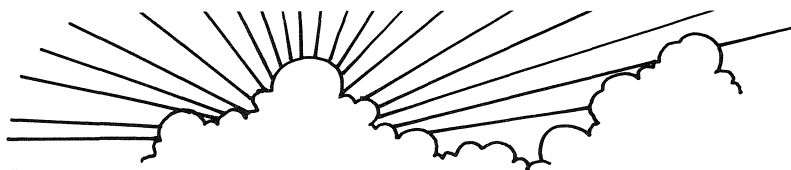
On the plus side, Platte River Associates has done an excellent job on Duette's manual (yes, I finally did read it). It covers most questions thoroughly in an easy to understand style. The One Minute Tutorial is sufficient for experienced users. Succeeding sections cover all phases of the program in increased detail. The appendices describe error messages/troubleshooting, cables, and customer service. All this fits comfortably in 22 pages. The table of contents easily serves as an index. The HP version includes an extra README file that explains the differences between the HP and IBM versions of the program.

Duette requires 148K minimum main memory to run. I find that a main memory setting of 168K allows room for SHELF and buffers=12. It is not copy protected and is supplied on both 5.25" and 3.5" diskettes. Both diskettes are in IBM format.

	IBM to Plus	Plus to IBM	IBM to HP9114	HP9114 to IBM
124K Byte File Transferred				
Using Duette	30	29	71	69
Using HP-IL Link Card	35	32	40	58
Using XModem 9600 Baud	183			
26 Files (258K) Transferred				
Using Duette	93	61	234	191
Using HP-IL Link Card	82	62	107	108

Units are time in seconds.

All files transferred to and from the IBM PC were stored on a RAM Disk. All files transferred to and from the Portable Plus were stored on the Edisc. Files transferred to the HP9114 disk drive using Duette were first transferred to the Portable Plus and then via the HP-IL connection to the HP9114.



The Editor It's way beyond MemoMaker!

You won't believe all the word-processing features this \$99.95* program contains—and it takes up less than 40K of memory!

***(only \$79.95 for Portable Paper subscribers)**

by Hal Goldstein

Let's face it: MemoMaker is an adequate word-processor, but it has its limits. No search and replace. No simple way to merge files. No destructive backspace key. (To delete the last character, you have to use the left arrow key and the deletion key[s].) No compressed or expanded printing. No...—but why go on? If you use MemoMaker, you probably have your own list of things you wish it could do.

Well we have good news! Now there's an easy-to-use text editor that runs on the Portable and Portable Plus that will satisfy almost every item on your wish list. And the program comes with a built-in bonus: It also runs on the HP 150, IBM PC, and HP Vectra, which means that **now you can use the same program and files on your desktop that you use on your Portable.**

The program is called THE EDITOR. It does everything MemoMaker does plus a heck of a lot more. And you don't have to go to the expense of buying WordStar (for the Portable) or MS Word (for the Plus) to go beyond MemoMaker's capabilities.

THE EDITOR's most valuable features are listed on the chart to the right. It's quite a list, isn't it? To me, THE EDITOR is a real blessing. I use it daily instead of MemoMaker, and I've silently given thanks to its author, Ed Gilbert, many, many times. Just a few minutes with THE EDITOR (that's all it takes to be up and running) and I think you'll be a fan of his too.

In addition to the many great features listed to the right, there are five more I especially want to emphasize:

1. THE EDITOR's Lotus-like menus make it incredibly easy to use.

2. THE EDITOR creates ASCII files, which means you can send your files to and from almost any other program or computer without special formats or codes.

3. THE EDITOR will automatically back up your files to protect you against mistakes: When you save a file, THE EDITOR saves not just the current version, but the previous one as well.

4. THE EDITOR takes up less than 40K of memory.

5. THE EDITOR loads and saves files and executes commands exceptionally fast.

Even in the desktop market, it is difficult to find a word processor with this many useful features at this low a price. For the Portables, THE EDITOR simply can't be beat. See for yourself: Order your copy, risk-free, today.

**THE EDITOR \$99.95
\$79.95 for Portable Paper subscribers.**

RECOMMENDED FOR:	
HP110 Portable	●
Portable Plus	●
Portable Vectra	●
HP150	●
IBM PC and compat.	●
Available on ROM Backup for the Portable Plus	

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Special combined offer—

SAVE \$30:

*THE EDITOR and THE FORMATTER together—
Only \$99.95 total (Portable Paper subscribers only)*

Note: The user manual itself is a challenge, and no technical support is available. We therefore recommend THE FORMATTER for strong computer users or those already familiar with text formatters.

If you need any of the features listed above, and if you're willing to spend the time it takes to learn the commands, THE FORMATTER is for you. Order your copy, risk-free, today.

**THE FORMATTER \$59.95
\$49.95 for Portable Paper subscribers**

THE EDITOR gives you all these great text-editing features and more:

- **Search and replace.**
Just tell THE EDITOR what word or phrase to look for, and it will find every place you've used it. At your option, it will display each occurrence, or replace the occurrences either selectively or globally.
- **Edit two files at once.**
THE EDITOR will display two separate portions of text at the same time, one above the other. You can view and edit two parts of the same file—or even two different files—simultaneously.
- **Backspace delete.**
You can erase the last character with a single keystroke.
- **No limit on file size.**
If you're an HP110 Portable user, you're no longer confined by MemoMaker's 819-Line limit. You can have as large a file as internal memory allows.
- **File merge.**
You can merge two or more files together with ease.
- **Compressed and expanded.**
You're no longer restricted to bold and underline. You can imbed control characters in your text to tell your printer to print all or part of your text compressed, expanded, bold, underlined, or whatever else your printer can handle.
- **Unlimited line length.**
Your files are no longer limited to 80 characters per line. This means, for example, you can print 132-character lines on your ThinkJet printer in compressed mode.
- **Lines per page.**
You can specify the number of lines per page, using the control codes required by your printer.
- **Easy in, easy out.**
You can exit from THE EDITOR, run another program, then type a one-word command and be back in THE EDITOR in a flash, exactly where you left off. This includes exiting and returning from DOS—which means you can delete, copy, and rename files while running THE EDITOR.
- **Right justification and automatic paragraph indent.**
A simple command right-justifies your text, and at the same time automatically indents your paragraphs however many spaces you wish.
- **Undelete.**
Erased something you want back? No problem. A simple command will undelete the last line or block of text deleted.
- **Upper/lower case conversion.**
Another simple command lets you change upper case to lower case and vice-versa without having to retype anything.

In terms of useful features per dollar, and in terms of the convenience and increased productivity you gain, I feel that THE EDITOR is a truly exceptional buy. I urge you to try it. Order yours today.

Hal Goldstein

The Formatter

THE FORMATTER gives you advanced formatting capabilities that even THE EDITOR can't handle—like: multi-line headers and footers•automatic hyphenation (you can even add your own words to the built-in dictionary)•user-specified page length and line length•automatic page numbering•tables and charts•table of contents generation•and more.

THE FORMATTER works by imbedding special formatting codes into your EDITOR, MemoMaker, or other ASCII text files. You can customize THE FORMATTER for almost any printer.

SPECIAL FEATURE:

Adding Memory to Your HP110

[Hal—After three years of saying it is impossible to upgrade the HP110's memory, Sam Chau figured out how to do it. The following article explains how to modify your HP110 and add 240K of memory. That 240K becomes a second (C or D drive Edisc). Unfortunately, doing the upgrade yourself requires expertise and voids any HP warranty.]

Unless you really know what you are doing, don't even think of doing this upgrade yourself. Once you do physically alter your machine, all HP warranties are off. Furthermore, HP is under no obligation to repair your machine even if something totally unrelated to the modification eventually occurs.

In a future issue Sam Chau discusses a method for speeding up the Portable Plus' processing speed. The change involves switching the Portable Plus CPU for another CPU. Unfortunately, such an upgrade also voids HP warranties and mean that HP is under no obligation to service the unit.]

Expanding the HP110's Memory Capacity

By Sam Chau, 1200 Murchison Drive, Millbrae, CA 94030
(415) 692-8710

Two major weaknesses of the HP110 computer are the lack of sufficient memory and the ability to expand it. For a machine that runs MS-DOS, a total of 272K of RAM just isn't enough, especially when it must be shared by user memory and a RAM disk. Fortunately, through a bit of research and experimentation, a method has been found by which the capacity of RAM of the HP110 can be expanded from 272K to 512K. The following is a description of why it works and how it can be done.

First, a little technical background. The 272K of RAM in the HP110 is physically contained in 34 static RAM integrated circuits on the main printed circuit board inside the machine, with each IC holding 8K bytes of memory. It was due to the large size of these RAM chips that made it impossible for HP to design the HP110 with significantly more than 272K of RAM. The HP110 itself, however, was designed to handle a maximum of 512K of RAM. Consequently, an HP110 contains only 53% of the maximum amount of RAM addressable by the CPU. In more technical terms, there is a void in the 8086 processor address space. It occupies addresses 44000-7FFFF (HEX), while the RAM itself is mapped to 00000-43FFF (HEX).

Now that several years have passed since HP designed the HP110, present IC technology offers a RAM chip that holds 4 times the capacity of the chips used in the HP110, without any increase in physical size. It is with these 32K byte static RAM chips that the HP110 memory can be expanded to 512K. Unfortunately, such a task is not easy for

a typical user, since it not only requires plenty of time, patience and care, but much hardware expertise, especially in terms of soldering and unsoldering techniques, as well as a comprehensive set of electronic tools.

THE MODIFICATION PROCESS

The hardware modification process to expand the HP110 memory to 512K basically involves disassembling the machine, isolating the memory PC board from the case, unsoldering 18 RAM chips from the board, replacing them with 12 of the higher density chips, soldering about two dozen wires onto the board, and finally putting the machine back together for testing. Of four machines that had been successfully modified, the average time taken was 8 hours. The desoldering of the RAM chips was especially difficult, since the IC pads on the PC board can be damaged rather easily. Having the correct tools and the expertise to use them properly is a must. The additional wiring required is also tedious and time consuming, and some wires need to be soldered onto IC pins which have been lifted off the pads. But if you are the hardware type, and you own an HP110, you may still think the memory expansion is worth attempting yourself.

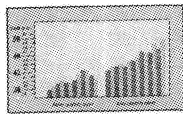
What follows is intended for the more technically inclined. Of the 272K of RAM, the 18 8K*8 RAM chips to be removed correspond to CPU addressed 20000-43FFF (HEX). The resulting empty 'sockets' now make room for twelve NEC 43256-12L 32K*8 static RAM chips, which then occupy addresses 20000-7FFFF (HEX), thus increasing memory to 512K, and fill up the unused void in the address space. Six of the sockets remain empty on the board. Because the 32K*8 chips have two more address lines than the 8K*8 chip, the net that was defined as a chip enable for the 8K*8 chip must be rewired into an address line for the 32K*8 chip. This net is on pin 26 of the RAM chips. Pin 1 is unused on the 8K*8 chip, but since it serves as address line A15 on the 32K*8 chip, a wire must be used to link up all the pin 1's, and it is connected to a pin on the 82C82 octal latch that supplies the demultiplexed MA15 address signal.

The address decoding logic must also be modified to handle the larger RAM chips. This is achieved by removing 3 decoder chips and replacing them by 74HC138 3-of-8 line decoders, with some of the IC pins lifted to realize the required wirings. When this is done, the machine can be re-assembled to be tested.

TESTING AND ACTIVATING THE NEW MEMORY

I have written a simple memory test program which will test only the extra 240K of RAM available after the modifications. It is a quick way of finding out whether the changes were done correctly. Since the HP110 operating system always 'thinks' the machine has only 272K of RAM, the additional 240K of memory is therefore not accessible from either main memory or drive A. To take advantage of the extra RAM, it is defined as an additional RAM disk by means of an installed driver program. This extra RAM drive is accessed in exactly the same way as the built-in drive A, and takes on a drive letter that is after the external drives defined in the PAM configuration menu. For example, if the HP110 is set to handle one external disk drive (C:), then the extra RAM shows up as a 240K drive D. Any access to the contents of drive D is channeled through the installed driver, which must be present in drive A at all times. The

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extra RAM disk is also better protected against data corruption. The HP110 operating system will never write over this memory, since it does not 'know' the memory is there!

To activate the extra RAM disk, hereafter referred to as drive D, first a copy of the Edisc driver is copied into drive A from an external disk drive. Next, a CONFIG.SYS file must be created to contain the line:

DEVICE = RAM110.SYS

This file tells the HP110 to look for the Edisc driver called RAM110.SYS in drive A and install it whenever the machine is rebooted. Then the user reboots the machine by pressing **<SHIFT> <EXTEND CHAR> <BREAK>**. During the reboot a message shows up briefly, indicating that the driver has been successfully installed and is now memory-resident. The driver actually looks for the extra RAM to be at its intended place. Attempting to

this happens, all that the user needs to do to reactivate drive D is to reload the Edisc driver into drive A and reboot the machine. The only other means of corrupting the extra RAM disk is through a user program, and this scenario only occurs frequently when the user is developing/debugging assembly language programs.

Since the HP110 operating system does not append the string D: to the DOS environment variable, executable programs stored in drive D will not be found and executed if just called by name when the current drive is drive A. To fix this, a file called PAM.ENV can be created to contain the following lines:

COMSPEC = B:\BIN\COMMAND.COM

PATH = B:\BIN;B:\;D:\;A:

PROMPT = \$T\$H\$H\$H\$H\$H\$H\$H\$H [\$P]: \$S

The first line is mandatory. The second line ensures that DOS will also search drive D for executable files. The third line simply makes the MS-DOS prompt in the HP110 look like the default DOS prompt of the Portable Plus.

The main disadvantage of drive D is that its contents are not externally accessible via HPLINK. This is because the HPLINK program cannot possibly anticipate the existence of an additional RAM disk in the system and work with it.

Currently, the Edisc driver provides the only means to take advantage of the extra RAM. Ideally, the additional 240K should be part of drive A. But since the operating system (in ROM) was hard-coded to recognize only 272K of RAM, it must therefore be extensively modified to use all 512K of RAM as either user memory or drive A. In particular, the BIOS will need to be rewritten to a large extent. This is at best a difficult task, since the HP110 ROM BIOS source code is not available from HP. So for now, the only way to use the extra 240K of RAM is to make it into a RAM drive.

THE TOOLS NEEDED

The following is a list of the required tools, ICs, and a terse procedure to expand the 272K RAM of the HP110 to 512K. *It must be stressed that opening up a machine for the purpose of modifying it definitely voids the HP warranty.* To complicate matters further, HP Corvallis has recently decided not to repair any machine that contains evidence of having been modified by the user. Such units will be returned unrepaired. As a result, HP110 units with the extra RAM will no longer be serviced by HP should they fail after the modifications are in place. It is therefore strongly suggested that units still carrying a valid warranty not be tampered with in any way.

Again, do not attempt the following modifications if the proper tools are not available, or if you lack considerable experience in IC soldering and de-soldering, as well as the knowledge to handle static sensitive CMOS digital ICs. The HP110 service manual provides a step-by-step procedure for disassembling and re-assembling the machine. These should be followed to avoid unnecessary damage to the case and the PC boards. The service manual also provides schematics and component locator diagrams to facilitate the modification process.

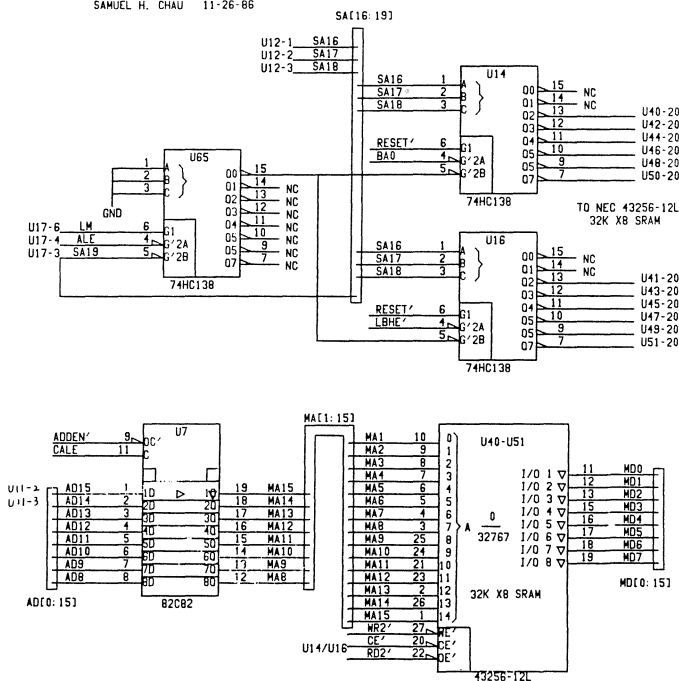
Tools required:

—Grounded, temperature-controlled solder iron with narrow tip and set at 700-750 degrees F.

—Low-static solder sucker or vacuum-powered desoldering station.

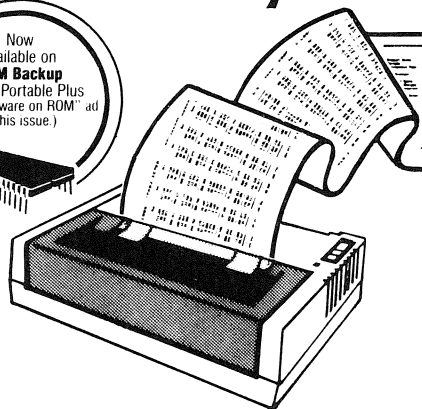
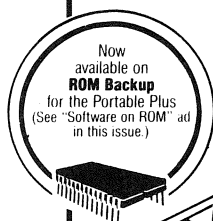
HP110 512K RAM EXPANSION SCHEMATIC

SAMUEL H. CHAU 11-26-86



install the driver in an unmodified machine will result in an error message. The driver program also detects the first time it is installed and promptly 'cleans up' the extra RAM, and generates a proper disk structure to make it a valid RAM drive. After the reboot finishes, drive D will be usable in very much the same way as drive A, except that the size of drive D is fixed. Since many large application programs require much user memory to run, with the presence of drive D the HP110 can be configured such that a minimum amount of RAM (16K) is left in drive A, while allowing user memory to be at its maximum size of 256K. Such a small drive A still leaves enough room for the Edisc driver, as well as several small files. Essentially, drive D can take the place of drive A as the principal RAM disk. Another advantage of this configuration is that unless the battery is completely depleted, the contents of drive D are guaranteed to be intact, even if the machine goes through a crash or a reset that corrupts or destroys the contents of drive A. If

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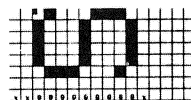
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RECOMMENDED FOR:	
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Portable Vectra	•
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- Anti-static workstation mat with wrist strap.
 - Flux core solder, preferably with water-soluble flux.
 - TORX T-8 screwdriver.
 - Tweezers, needle-nose pliers, small flat-blade screwdriver, Xacto knife, wire stripper, IC extractor.
 - 28 or 30-gauge insulated wire-wrap wire.
- ICs required:
- (12) NEC 43256-12L (120ns) 32K*8 CMOS static RAM (150ns versions will also work)
 - (3) 74HC138 CMOS 3-8 line decoders

STEP BY STEP MODIFICATION PROCEDURE

Procedure:

1. Disassemble the HP110 according to the service manual instructions and isolate the System PCA (memory board) from the rest of the machine.
2. Using a grounded, temperature-controlled soldering iron and low-static solder sucker, unsolder and remove

ICs U16, U36-U51 and U65-U67. U36-U51 and U66-U67 are 28-pin 8K*8 CMOS SRAMs. U65 is a 16-pin 74HC139 and U14, U16 are 16-pin 74HC138 decoders.

3. Solder twelve (12) 28-pin NEC 43256-12L 32K*8 CMOS RAM chips onto the System PCA, using the now-empty sockets for U40-U51. Sockets for U36-U and U66-U67 should be left unpopulated.

4. Solder a 74HC138 decoder chip each into the U14 and U16 sockets, with each chip having pins 1,2,3 and 5 lifted to a horizontal position.

5. Solder a 74HC138 decoder chip into the U65 socket, with the following modifications:

pins 1, 2, 3, 5 and 15 lifted
pins 11, 13 and 14 clipped (no connection)
pins 4, 6, 7, 8, 9, 10, 12 & 16 soldered normally onto the PCA

6. Complete the wiring on all lifted IC pins as shown on the schematic. This includes U14 pins 1, 2, 3 and 5, U16 pins 1, 2, 3 and 5, and U65 pins 1-6 and 15. U14, U16 and

U65 together forms the new address decoding logic for the 32K*8 RAM chips.

7. Connect pin 1 of all twelve 43256-12L RAM chips together and connect them to U7 pin 19. U7 is a 82C82 octal latch. Do not unsolder it. Avoid making the wires unnecessarily long. This wiring provides the address line MA15 to the RAM chips.

8. Cut the trace to pin 26 of U40-U51. This is a bit tricky since one must locate the exact position for cutting so that only U40-U51 pins are isolated. This is because we want to rewire pin 26 only on U40-U51. But the trace on the PC board surface connects so many RAM chips together that one must be very careful in locating the proper cutting point. Once the trace connecting pin 26 of U40-U51 is isolated from the rest of the RAM chips, it should be connected to U7 pin 18. This provides address line MA14 to the 32K*8 RAM chips only.

9. Cut the short traces connecting U7 pins 1 and 2 to logic ground. Connect U7 pin 1 to U11 pin2. Connect U7 pin 2 to U11 pin 3. This provides buffered CPU multiplexed address/data lines AD15 and AD14 to latch U7.

10. Re-assemble the HP110 according to the service manual instructions.

It should be noted that at this time the cost of the NEC 43256-12L RAM chip is approximately \$13. This means that the RAM chips alone will cost over \$150. The 150ns version is somewhat cheaper and although they have not been tested with any machine, I expect they should work without any problems. The HP part number for the HP110 service manual is 00090-90021.

After re-assembly, if the modifications were done incorrectly chances are that the machine will not even wake up normally. If this is the case the only solution is to re-open the machine and check the wiring for correctness, as well as for shorts, cold solder-joints, and broken traces. The latter is frequently caused by careless desoldering of the original RAM chips. Cracked or torn traces must be patched with wires.

If the machine will wake up properly with the contrast key, then the next step would be to run the memory test to make sure the added RAM functions properly. It may also be necessary to run either the built-in diagnostics or the disk-based diagnostics to ascertain the functionality of the original memory. If the memory test passes, the machine truly contains 512K of RAM. Otherwise, some rework will be necessary.

It should be noted that the 32K*8 RAM chips do draw a higher standby current. This of course affects only sleep mode. But it means that when the machine is powered down, it is drawing a current that is higher than expected by PAM. This is true even though the machine now has 6 fewer chips than before. Consequently, the PAM battery level display will be inaccurate to a certain degree. To get a feeling for the change in accuracy, run the battery down until the LOW BATTERY! warning message shows up, then look at the battery level. It will most likely be higher than the figure indicated in the owner's manual. But more importantly, users should be aware that modified machines will not last as long in storage, because of the higher standby current drain by the 32K*8 RAM chips. As the technology improves, newer versions of this chip may offer significantly reduced power requirements.

The HP110 RAM expansion scheme represents the

most significant improvement of the machine's performance since the machine's introduction, and for HP110 owners, it is certainly a cheaper upgrade path than buying another portable, at least for those who possess the right technical expertise.

[If you are an HP110 owner and would like to upgrade your machine give us a call. If there is a reader competent to upgrade HP110's as described above, also give us a call. If there is a demand, we'll see if we can have the upgrade done. I imagine we will charge between \$450 and \$650 for the upgrade. Remember, however, HP may refuse to fix any machine that has been so altered. Personalized Software—(515) 472-6330.]



Through the Looking Glass

By Ed Keefe

Reflections In A Looking Glass

Reflecting is something that portable computer screens do very well. Yet, in another sense of the word, we humans also excel at "reflecting."

Our kind of reflecting puts us at least one notch above our computers. Thus far, I have not heard of a computer that can reflect upon and answer such questions as, "What's happening?", "What am I actually trying to accomplish?" or "Is it really worth it?"

So, while viewing my own reflection in the looking glass of my 110's screen, I'd like to share with you a few reflections about what's happening in the portable computing arena and in my own area of the computing world.

WHAT'S HAPPENING COULD BE THE START OF SOMETHING BIG

What's happening? Well, it's autumn, the leaves are turning red and gold. It's the start of a new year at school. It's also the season for computer companies to release new products.

Now I know there's more happening than this, but let me reflect upon the last two events. They have several things in common.

In education, this time of year brings with it the start of new classes, new students, new challenges.

In the computing world this time of year brings with it the announcement of new computing hardware, new software and, again, new challenges.

I look at the students in my six computer classes and reflect that, at best, about half of them will contribute something worthwhile to the field of computing.

I read about all the new computer products that have been announced and reflect that less than half of them will contribute to the state of the computing art. Much of the new hardware and software will not meet the challenge of

the computer market place. Most of it will vanish from the scene.

Nonetheless, I always start each academic year with a sense of hope. Maybe this year's students will be different. Perhaps most of them will succeed.

Likewise, there is always hope that this year's computer products will be the start of something big.

WHAT HAS BEEN ACCOMPLISHED: NEW PRODUCTS, NEW DECISIONS

Many of you know that Borland International has announced several new software products. Foremost among these is a new version of Turbo Pascal. Borland has also announced a new word processing program, Sprint, and a spreadsheet program, Quattro. And this is what one software company, alone, has accomplished.

I'd like to try this new software, but, regrettably, none of it will work on the HP110 or Portable Plus. Like most new software, it works only on IBM PCs and compatible computers.

In the midst of my wishing for a portable computer that would let me explore some of this new software, Hewlett Packard has announced the Portable Vectra.

Those of us who need a portable computer can now have PC compatibility and HP durability while still keeping our portability. HP has offered us a choice. We can either stay with our 110 or Portable Plus or move over to the Vectra line of computers. (HP would undoubtedly prefer that we make this a "both-and" rather than an "either-or" choice.)

Upon reflection this is a weighty decision. The HP110 and Plus already have most of the characteristics of an ideal laptop computer. They have ruggedness, long battery life, continuous memory, software in ROM, rapid start-up at the touch of a key, light weight, HPIL quick connections. These features are what attracted many people to portable computing. I think of them as HP's contribution to the computing art.

Apparently, HP has abandoned many of these features with the Portable Vectra in favor of more complete PC compatibility. As a result, the use of built-in disk drives means more weight, less ruggedness, shorter battery life, and slower start-ups.

The apparent lack of HPIL circuitry in the Portable Vectra means that neither the ThinkJet printer nor the 9114 disk drive will be directly usable with the new computer.

From what I can surmise, the Portable Vectra is more in line with the new IBM-PS/2, model 30. It will operate faster than the PC and XT, but will never run the new OS/2 operating system. And even though the new HP portable can have up to 6 megabytes of expanded memory, don't expect that to be continuous memory.

The major advantage in picking the Portable Vectra is that there is a wider range of software from which to choose.

AND YET MORE DECISIONS

Selecting software is a full time job in itself. There is a wealth of software already available for the new Portable Vectra. Not only are there commercial programs such as Lotus 1-2-3 and Word Perfect, there are also hundreds of

programs in the shareware market from which to choose.

I will be eager to discover if my favorite PC programs will run on the Vectra. Currently, I like Galaxy 2.2C for word processing. It's very fast, easy to use, and costs less than \$50 for a registered copy. It's the only shareware word processor that uses the Turbo Lightning spell checker. For more complicated writing, I prefer PC-Outline, another shareware program. **edibm** is the IBM PC version of The Editor for the HP110. It's my choice for writing DOS batch programs and memos. When I want to do quick calculations, PC/Calculator gives me a programmable RPN calculator that is very much like an HP-12C, 16C, and 41C combined. It, too, is shareware and costs \$25 for a registered version. For database management, I currently like VP-Info from Paperback Software. It looks like dBASE II but behaves like a Turbo Pascal programming environment. When I'm trying to organize my hard disk at work, I like the Hard Disk Manager used in conjunction with the Directory Scanner shell programs. Both of these programs cost less than \$20 for registered copies under the shareware marketing concept. When I want to send electronic mail or swap software over the phone, I like another shareware product, Telix. Then, of course, there are all the memory resident programs such as Sidekick that make life in the computing world a little more nerve racking.

I still favor 1-2-3 for spreadsheet use, but I'm looking forward to getting a copy of JOE. This spreadsheet is a brand new, street-legal clone of 1-2-3 for the unbelievable price of \$18. Finally, when I get down to programming, I still reach for Turbo Pascal. However, I will most likely make a switch to Turbo C this year to satisfy the demands of my college's advisory committee.

And although it sounds like I've selected all the software that anyone could ever use, I can't stop there. One of my duties is to evaluate new software for use in our educational training programs.

For instance, I just received a copy of a program called the Heavy Duty Word Processor for Lotus 1-2-3. Bi-Intelligence, Inc., the publishers of HDWP, claim that it will work on any machine that can run 1-2-3. The good news is that HDWP does, indeed, work on the HP110. The not-so-good news is that most people will not want to use it on the HP110: not as long as there is MemoMaker. HDWP is a collection of Lotus macros that you load into a worksheet with the /File Retrieve command. These macros, although cleverly designed, still force you to enter text at the top of the screen and then drop it into the worksheet. Other macros in HDWP format the text and rearrange it for printing. In short, HDWP is NOT one of the recent crop of 1-2-3 add-in programs. HDWP costs \$45. My immediate reflection is that HDWP is no contribution to the state of the computing art.

However, if you are interested in offbeat uses for 1-2-3, let me offer you a computer science tutorial written entirely with Lotus macros. If you ever wondered how computers add (and who hasn't?) you may find the program **boole.wks** to be amusing if not amazing. BOOLE will show you how to design a binary math adding machine that does not use a single "+" sign nor even an **@sum()** function. BOOLE is my own effort, but it's yours for the asking (along with a formatted disk and a self-addressed, stamped envelope.) That's what I call a contribution. Once you have used it, you can "/File Save" it right along with

your copy of Heavy Duty Word Processor.

On the other hand, if you find **boole.wks** to be fascinating, you might also like to read my article, "To Tell the Truth" in the August issue of *Lotus* magazine. Beyond that, you might even want to make your own contribution to my computing art by buying my recent books, "An Easy Course in Using the HP-16C" (\$14.95) and "Computer Science On Your HP-41C" (\$24.95) from Grapevine Publications. (*Ed—Grapevine is located at PO Box 116, Corvallis, OR 97339. The books can also be ordered from Educalc, (800) 633-2232, Ext 344, or (714) 582-2637.*)

THE ULTIMATE REFLECTION: WHAT WILL REALLY BE USEFUL?

So, here I am at the start of another year. It would be nice just to sit back and reflect on the successes of past years. That kind of reflecting does not advance the art or practice of computing.

Likewise with computer software and hardware. It would be comfortable to stay with the old, time-worn software and hardware. That kind of decision will not help

prepare this year's group of students.

It's time, once again, to reflect on what has been worthwhile in the past and to decide what is of worth in the present.

As it is with new students, so it is with new computer products. The question always remains: will either contribute anything useful to the field of computing? Only time will tell.

A word about the shareware programs mentioned in this article: remember that none of the shareware programs work on the current HP110 or Portable Plus. All of them are available on local or regional remote bulletin boards or through local PC-users groups. However, if you do not have access to either of these sources, and would like to explore what one or two of these programs have to offer, just send a formatted disk for each program, along with a stamped, self-addressed mailer to Ed Keefe c/o FastAid Co. 314 S.W. Logan, Ankeny, IA 50021. I will be glad to pass along a copy of one or two programs for no charge. Some shareware will be available on the 1988 subscriber's disk.

WIZARDRY

by The Wizard, Cliff Looyenga

[Hal—As you read this review on the Portable Vectra, keep in mind that Cliff had a prototype unit. I asked Corvallis to respond to some of the points Cliff raised about the Vectra. The Corvallis response is in italics in context.]

First Look At The Portable Vectra

This last month has been quite a month. I spent a week in Las Vegas for Interex (an HP computer users convention), and less than a week at home before a trip to Corvallis, Oregon. I just got back from Corvallis yesterday, and tomorrow I'm off to Canada. Besides all that, this column is due tonight. I did pick up a lot of good information while gone, and I even managed to meet Hal. One of the most exciting things I managed to do was borrow a Portable Vectra from Hewlett Packard for a few days.

THE FACTS

The Portable Vectra comes in two models, a CS which has dual 3 1/2" floppies and a CS/20 which has one floppy and a 20 megabyte hard disk. Both come with 640K bytes of RAM and a processor speed of 7.16 megahertz. It has four slots able to take more memory, I/O, or anything else that someone decides to make for it. The battery life is rated at 10 hours for the model CS and about 4 hours for the CS/20. The unit I got was a prototype model CS that had gone through extensive shock testing.

THE EXTERNALS

The first thing that struck me about the Portable Vectra was its size. It's about the size of an average brief case, which

is big for a battery-operated computer. If you have a brief case, put it on your lap and flip up the "lid." As you might have guessed, it's next to impossible to use in a laptop environment such as a car or plane. The Portable Vectra is designed to have the power of a desktop, but can be easily taken home and set up on your kitchen table. At twice the weight of the Portable Plus, it gets heavy quickly, so I wouldn't recommend it for you bicyclers.

The Portable Vectra has a handle that pops out at the top of the lid. This makes it real easy to carry around without a carrying case. The only problem is that when you set it down, it promptly falls over. Which in my case, was on my toes. This is unfortunate since this means that anytime you want to take a break from carrying it around, you must lay it down flat, or find something to lean it against.

In the lid are two storage compartments; each can hold 3 floppies. This is convenient since there is no permanent Edisc and no ROM-based software. Everything you do must be on a floppy; unless of course you purchase the model CS/20 which has a built-in 20 meg hard disk.

The Portable Vectra has a little green LED that goes on when you have the computer on. Since the Portable Vectra doesn't have a timeout power off like the HP Portables do, the LED serves as a gentle reminder that it needs to be turned off. The LED can be seen when the lid is closed as well.

POWERING UP

I opened up the lid and turned the computer on to see what would happen. Since there was no floppy inserted in any of the drives, the computer couldn't boot up, but it did do something quite clever. It drew a little picture of the Portable Vectra and another one of a floppy. It then proceeded to show you that a floppy needs to be inserted in the left drive. Once I inserted the floppy, it promptly booted me up into PAM. I then hard reset the computer and timed how long it takes to boot up from floppy. It took 14 seconds compared to 4 on a Portable Plus (the Portable Plus takes 9 seconds if you have a floppy inserted in the external floppy drive).

DISPLAY

The Portable Vectra is the first computer, I believe, to have a 12-inch display and an aspect ratio the same as a desktop PC. This results in a larger characters. Also, when graphics software draws circles they look like circles instead of eggs.

The technology used for the display is called super-twist, which gives you a much greater viewing angle than you get with the Portable Plus display. I set both my Portable Plus and the Portable Vectra side by side on the table in my hotel room and looked at both. Because of the higher resolution that the Portable Vectra has (640 by 400), the characters look real crisp. The contrast, however, was about the same or a little worse than you get with the Portable Plus. The contrast is easily adjusted by a little slide switch that is on the display. Since the screen is larger on the Portable Vectra, you have to fight the reflection problem more than on the Portables. It was easy to find a good position to view the screen on the Portable Plus, but was more of a challenge on the Portable Vectra. *[Hal—Based on these comments, it was the opinion of our Corvallis contact that Cliff's unit had neither the anti-glare piece that covers the screen nor the latest version of the screen.]*

The nicest thing about the display is that it is easily detachable. This allows you to connect directly to a monochrome, RGB, or enhanced graphics monitor. This allows you to use the Portable Vectra at work without the eye strain that you get from LCD units.

The worst thing about the display is the color mapping. Color, on the LCD, is shown by different shades of gray. As you can probably imagine, gray shades on LCD displays work terrible. Almost every software package I tried had some color combination in it that made the text impossible to read even in the best light. There is some help, however; HP provides a setup program that allows you to select the shades of gray for each of the colors. With this, you can optimize the gray shades for best reading. I didn't have this program with the unit I used, so I can't tell you how successful you can be with it. *[Hal—Corvallis told me that the setup program is quite flexible. In fact it is possible to create a batch file containing a setup command for each program you run to maximize viewability. Also, once again, Cliff probably did not have the latest screen.]*

There is another alternative, and that is most software allows you to configure for monochrome monitors. This would be a real pain if you wanted to use a color monitor at work, but use the LCD at home.

Another thing I tried was playing the public domain game called Sopwith. This game lets you fly a little biplane around, shooting at little buildings. The game ran fine, but since it had so much movement the LCD creates what I'd call shadows. This made everything look blurry, and I couldn't even see the bullets I was shooting. In other words, I wouldn't recommend the display for playing any action games.

KEYBOARD

The keyboard on the Portable Vectra is wonderful. It feels much like the Vectra desktop keyboard. It has all 12 function keys and a numeric keypad that doubles for cursor control. Unlike the Portables, the keyboard has key rollover. Key rollover is the feature that allows you to type the next key you want without having to first let up the key you are presently typing. For example, if you want to type the word "to" on the Portables, you must release the "t"

before you can press the "o". On the Portable Vectra you can press the "o" even while you are still holding down the "t".

The only thing that I dislike about the keyboard isn't HP's fault. The keyboard is laid out much like the new IBM PS/2 family. One of the "features" of the IBM PS/2 keyboard is that they have moved the control key below the shift key. The caps lock key is now where the control key used to be. This is terrible when using wordstar or Turbo Pascal, which both use the control key for cursor movement. It is also inconvenient when trying to use control-s and control-q for screen flow control. After typing on it for a few hours, I started getting used to it, but it takes much longer because you have to physically move your hand off the home row. All the new Vectras that HP is selling have this new keyboard. I'm going to be hunting for some keyboard remapping software real soon now.

DISK DRIVES

The worst part about floppies is that they're slow. HP tells me that they are not as slow as the floppy drive is for the Portables, but I'm not convinced. I tested the speed with The Editor, which is a 39k program for the IBM version and a 40k program for the Portable Plus version. Loading The Editor on the Portable Vectra took 14 seconds, and on the Portable Plus it took 12 seconds (from Edisc on the Portable Plus it was less than a second). This is especially noticeable because you use the floppies for everything. One very nice thing is that the floppies are almost completely silent. I would feel perfectly comfortable using them in a library.

[Hal—when I confronted Corvallis with Cliff's result, they were truly surprised. Fortunately, they were able to clear up the mystery since they have a copy of our Editor disk. They checked out Cliff's claim, and it indeed took 14 seconds to load The Editor from our disk into the Portable Vectra. Then they copied The Editor onto a Portable Vectra formatted disk. (The Editor is supplied by us on an HP formatted disk.) The Portable Vectra now loaded The Editor in four seconds using the standard IBM format!]

The floppies are in a little spring-loaded compartment that you access by pressing a little button above the keyboard. The floppies can be used with the compartment shut, but HP advises that you should always leave it open for heat reasons.

I had brought only a limited amount of software with me, and the reason for this is that all my IBM software is on 5 1/4" disks. Since the Portable Vectra does not have a 5 1/4" drive, and one can't be purchased, I had to transfer any software I wanted to use to 3 1/2" floppies. This won't be a problem in the future, for I believe 5 1/4" floppies are on their way out, but it won't happen any time soon. The other consolation here is that you can now purchase most IBM software on 3 1/2" disks. There is also software available that will allow you to transfer data between the Portable Vectra and an IBM PC that are connected together via a serial interface. The only problem there is that you have to buy an HP serial interface card, because the Portable Vectra only comes standard with a parallel interface. So when it came right down to it, 5 1/4" would have been much easier for me.

PERFORMANCE

Although it only runs an 8086 at 7.16 Mhz, HP claims they have done some optimizations that make it as fast as an

IBM AT in certain cases. Unfortunately, I had only limited software at my disposal and couldn't run any benchmarks. My feeling after I was all done is that the performance is completely adequate. You will spend most of your time waiting for the disk drives, not for the CPU. All the applications that I ran are ones that I also use on my 8 Mhz Vectra AT clone at work, and I noticed very little difference in CPU performance.

COMPATIBILITY

I was very impressed with its IBM compatibility. The Portable Vectra is an IBM XT compatible. I ran The Editor, an outliner, a series of memory-resident software packages, Lotus 1-2-3, and some games. All of these ran fine. There were two games, however, that crashed the computer. This concerned me, so I hunted down an IBM XT and tried them on it. The amazing thing was that they crashed the IBM XT as well. The exact same symptoms occurred on both. I feel very confident that the Portable Vectra is at least 99% compatible with the IBM XT.

COMMENTS ON THE MODEL CS/20

When I returned the Portable Vectra to HP, I had a chance to use a prototype of the model CS/20. The hard disk made all the difference in the world. The machine just seemed to fly. I believe the hard disk has an average seek time of about 70 ms. Although it's not the fastest hard disk around, it's significantly faster than floppies. Another important note is that the model CS can NOT be upgraded to a CS/20. You must decide whether you want floppies only, or a floppy and a hard disk.

CONCLUSION

The Portable Vectra provides full IBM compatibility with desktop performance in a portable package. It is not well suited for extensive traveling, but makes a good PC to take home from work on weekends to get some extra computing done. If I were to make a choice between the dual floppies or the hard disk, I would not hesitate: the hard disk is the only way to go. The display is tolerable providing you don't run many applications that use a lot of color. In any case, if you plan to use it for extended periods of time, a monitor is the only way to go. The Portable Vectra is competitively priced as far as portables go. If you don't need the portability, you will get more for your dollar in a desktop PC. As for me, when I need a portable, I'm still going to reach for a Portable Plus.

(110% continued from page 9)

You can hear this if you place a radio next to the Portable tuned to a weak station. Pressing a key will create some hash and then it will stop after one second.

In the Power Save idle state, the CPU draws about 80 mA or 110 mA with the RS-232/modem port turned on.

Environment Space and PAM.ENV, Revisited

By Richard Burmeister

One small correction to the article in the last issue of *The Portable Paper* entitled "Out of Environment Space?":

When editing the PAM.ENV file to add the dummy variable to the environment space, the name of the variable must be in upper case, i.e., the line should be "DUMMY=abcdefghijklmnopqrstuvwxyz".

Some readers have called in to say that they are run-

ning out of room for all of their PATH entries, since they have so much software on ROM. Normally, PAM only looks at the first 80 characters of a line in the PAM.ENV file. To force PAM to read another 80 characters of a line, in your word processor insert a line-feed character (CTRL-J, ASCII character #10) before column 80 on a line.

For example, here is the PATH line from my PAM.ENV file:

```
PATH = A:\;A:\UTILS;B:\DT2;B:\DT1;
      B:\MEMO-TM;B:\HP82863K;
      B:\SW_SHELP;<LF> B:\EDITOR;B:\TURBO;
      B:\45548K;B:\BIN;B:\BIN\ETC
```

Please note that, in the above, <LF> represents the line feed character. Also, note that the above appears as a single line in the PAM.ENV file.

"File Creation Error" Explained

When you're trying to save or copy a file on your A drive, it's possible to get an enigmatic error message synonymous with "File Creation Error." In such a case it is probably NOT time to reformat your system or take your system in for repair. There are several possible reasons.

The most perplexing one is caused by the file limit in your A drive (root) directory. You may have a maximum of 64 files in the A drive main directory. If you try to save or copy a file to a directory with 64 files, you will get the "Can't Create File" message. If you are unaware of this limitation, the message can cause much frustration, since you are sometimes able to save files (after you have deleted a few files) and sometimes not. Users sometimes think there is something wrong with their machine and take it to a repair center.

The solution is to delete files or create subdirectories (see the DOS manual, a book on DOS, or Vol. 1 number 2 of *The Portable Paper*).

You will also receive this error message if you try to write to the external disk drive with no disk inserted or try to write to a non-existent subdirectory.

Turn On

From the Wiz: "Have you ever noticed that sometimes you need to press a key more than once to get the your Portable to wake up from sleep mode? I am told this is because the Portables check the keyboard only every 1/2 second to see if it is time to wake up. The way to get your Portable (or Portable Plus) to wake up first time, every time, is to use the contrast key. This key is directly connected to the on/off circuitry."

PAM and DOS Overhead

When you try to read a file or run a program that takes 100K of RAM memory to run, the system may lock up and not load the program or may claim that there is not enough memory. The reason is that if you run a program from PAM, you need enough memory not only for your application but also to account for the system overhead of 4K for PAM and 27K for DOS. That is why you need a minimum of 131K in RAM to run the 100K program.

Diskpack Vs. Pack

By Rich Burmeister

After several hours of creating new files and erasing old files on your computer, the disk becomes "fragmented."

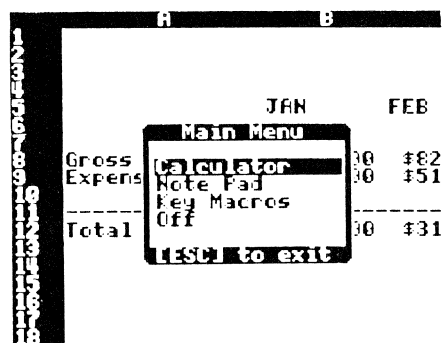
Shelp

Instant Access Pop-ups for the Portable Plus: Calculator • notepad • macros • and more

"A great, easy-to-use productivity booster. If there's one program every Portable Plus owner should have, it's Shelp."—Hal Goldstein, Publisher, The Portable Paper

It's a program called **Shelp** (*shell* + *help*), and it runs on the Portable Plus from within any non-graphics program. Here's all you do:

Press [Ctrl] [Shift] [Extend char] and up pops the Shelp menu, right in the middle of your application (Lotus in this example):



The menu gives you 4 choices: Calculator, Notepad, Key Macros, and Off.

Choose **Calculator** and get a 4-function calculator that works just like a pocket calculator with memory. You can:

- save results in ten different storage registers and retrieve them again with two quick keystrokes
- "paste" results at the cursor location in whatever application you were using when you invoked Shelp.

Choose **Notepad** and a "scratch pad" pops up on your screen. Type whatever you want into it, exit to your application, and then recall the notepad whenever you want.

No more having to scribble notes on paper to remind you of phone numbers, things to do, or bright ideas!

Choose **Key Macros** and you can assign "strips" of up to 31 typewriter characters to any of the 26 letters in the alphabet. This saves you having to type the same phrase over and over again.

Example: If you type "United States" a lot, you could assign the entire phrase to the "U" key. Just move the

cursor to "U" in the Keyboard Macros menu and type "United States."

To recall "United States," simply press [Ctrl] [Extend char], then [U]. Presto—"United States" appears at the cursor location in your application!

Choose **Off** and your Portable Plus turns off without having to return to P.A.M., and without having to save your application file. When you turn your computer back on, you'll be in the same place in the same application, with no data lost.

All the capabilities of IBM-PC programs like Borland's SideKick and SuperKey? Certainly not, but Shelp's the only such program for the Portable Plus. It's a clean, easy-to-use, and highly useful helper you'll want at your fingertips always.

Shelp runs on the Portable Plus only. It works with Time-Manager, MemoMaker, Reflection 1, Lotus, and any other non-graphics program. (Shelp does not run with MS Word.)

Shelp was written by Randy Salo, the former HP engineer who authored MemoMaker on the original HP Portable.

Shelp \$55 (\$49.95 for Portable Paper subscribers)

60-day no-risk trial: If, after 60 days you are dissatisfied with this product for any reason, you may return it for a full refund. **To order,** use the postage-paid form at the back of this issue, or send check or credit card number to: Personalized Software, P.O. Box 869, Fairfield, IA 52556 515/472-6330

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The Word Plus

A great spelling checker—and more!

Especially recommended for the HP110 Portable

HP110 Portable users:

There are several reasons why THE WORD PLUS is your best bet in a spelling checker.

First of all, THE WORD PLUS fits into your machine! Its dictionary has 45,000 words, but you can use a 35,000 word dictionary instead; this saves 30K of memory space. On the HP110, this leaves 40K for your document. The full dictionary and main spelling program take up about 165K.

Second, THE WORD PLUS comes with a carload of useful features. In fact, it offers most of the same word-replacement features as Webster's, a top-rated spelling checker that runs on the Plus (see ad in this issue). What's more, THE WORD PLUS even does some

things Webster's can't do. For example:

- It can find all the words with a given prefix or suffix—or even find words that rhyme.
- It can do a global search and replace on multiple words in a single pass.
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If you've ever worried about spelling errors or embarrassing "typos," worry no longer. Order THE WORD PLUS. It's fast, it's friendly, and it *never* forgets a spelling.

**THE WORD PLUS \$150.
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"Of all the spelling checkers I've used, I like The Word Plus best . . ."

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Author of "Chaos Manor" column
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THE WORD PLUS works with MemoMaker, The Editor, and other word processors that can produce ASCII files.

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Portable Plus	•	HP150	•
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When this occurs, files are stored in non-contiguous blocks of memory. Even a single file may be stored in several pieces, scattered throughout the disk.

Normally, you don't care about this fragmentation. When you access a file, DOS finds all the pieces and puts them together for you. However, disk access is a little slower. Since the electronic disk is so fast, you won't notice this slight increase in disk access time.

But you might notice something worse: sometimes even though DOS reports lots of empty Edisc space, PAM's **f6, System Config** will not let you diminish **Edisc** space and increase **Main Memory**. The problem on both Portables is that **Main Memory** must be contiguous, so the non-contiguous blocks of **Edisc** space can't be allocated to it.

THE SOLUTION? USE DISKPACK OR PACK

You can solve this by using DISKPACK or PACK. How do they differ?

PACK rearranges the files on your HP Portable Edisc (and nowhere else), putting them in contiguous blocks of memory so no space is wasted. Unless you have the ROM B version on the Portable Plus, DO NOT use PACK on an Edisc which has subdirectories. The early version did not work properly with subdirectories. Also DO NOT use PACK on any disk besides the Edisc. PACK does not come with the HP110.

DISKPACK works like PACK, except that it:

- contains no bugs for Portable Plus usage.
- packs a disk more efficiently than PACK. (Each file is packed contiguously. PACK simply puts all the files in a contiguous block. However, parts of an individual file may be scattered throughout the entire block.)

- works on (nearly) any DOS disk, as well as on the Edisc.

WARNINGS: DISKPACK may not work correctly on hard disk systems running DOS 3.2 or higher (e.g. some HP150s). Also, like ALL disk packing programs, it may destroy installed copy-protected software (like Lotus 1-2-3 version 2.01). Therefore, it is a good idea to make a backup copy of the disk you intend to pack before using DISKPACK.

One last warning: the HP9114 battery drains fairly quickly with intensive use. Therefore, make sure it is fully charged before using DISKPACK.

PACK is available from Personalized Software on the "Time Manager, Pack, HP Calculator" disk or the "DOS Tools" disk and DISKPACK is on the "1987 Subscriber Disk." Each disk but "DOS Tools" is available to *The Portable Paper* subscribers for \$7.50, including shipping, or for free if a formatted disk with self-addressed stamped envelope is sent to Personalized Software. "Dos Tools" is \$39.95 to subscribers.

(letters continued from page 5)

your article. I would like to address your comments and hopefully help your readers better understand HP's position.

HP has one approved source of InkJet paper. We have investigated other sources of paper, and based on a study of many different criteria, we believe that the paper we have selected best meets our requirements. We inadvertently shipped the non-approved paper with some orders. The paper that you felt is of "better quality" did not meet all of HP's requirements and was therefore not approved to be shipped to our customers. Unfortunately, you and other HP customers were disappointed when you reordered paper and found out that HP was only shipping HP-approved paper. This non-approved paper can be identified by an "8/5" in the right-hand border. Please accept our apologies for any inconvenience that this may have caused.

Please be aware that the QJ manual states that "for best results use HP-recommended InkJet paper only. All paper should be tested for satisfactory feeding, registration and print quality." This is not an all-inclusive list of requirements for InkJet paper, and we expend great efforts testing paper and HP products throughout the life of the products.

I hope that this has been of some help to you, and I thank you for your patience. *Harry McLean, Quality Engineer Hewlett-Packard Company, Camas, WA*

Software For Transferring Files

Disk compatibility is of major concern to any HP Portable user. As I wrote before, I've been able to use some equipment belonging to my employer to transfer files to an

IBM-readable 5 1/4" disk. For the average Portable user, this technique is cost-prohibitive. Even so, it has led me to continue my quest for an inexpensive file transfer technique. The goal has been to be able to use the same 3 1/2" disk in both an HP Portable and an IBM PC or compatible.

The answer is a commercial software program called SmartDisk. It is produced by Software Research Technologies, 2130 South Vermont Ave., Los Angeles, CA 90010, (213) 737-7663 and costs \$24.95.

Using this software, I've been able to read the root directory of most HP Portable 700K formatted disks. The subdirectories do not seem readable. The "format" that reads these disks is for an ACT Apricot DS 3 1/2" drive.

There are several "formats" on this software for reading HP150 3 1/2" disks, but they do not seem to work. They do format the disk in what they call an "HP150 DS 3 1/2" format."

Such a disk is usable by the Portable. You can access its files by using SmartDisk on an IBM PC or compatible with 3 1/2" disk drives.

In addition, the SmartDisk manual states that Software Research Technologies will update for free any format not already on their disk. Since they seem to have the technology, this is an excellent opportunity for *The Portable Paper* to enter into some sort of agreement with them.

I have two cases for the Portable I use. Both cases have had their zippers break in the same way—the zipper slider came off its track. There is any easy, though delicate, fix for this. Put the slider at the end of the track where it normally would be when the case is open. Using vise grip pliers, very lightly squeeze the rear of the inside (of the case) part of the slider. Initially, you should

barely squeeze it at all when the plier handles reach the end of their travel. Put some light oil on the slider and try it; if it still jumps its track, tighten the screw on the pliers less than one-eighth of a turn and try again. The worst that can happen is that you will still have a useless zipper.

For those trying to run Time Manager from DOS, don't. It leaves soft keys set that MemoMaker uses. I've gotten all sorts of Time Manager pieces into the middle of a memo.

Keith Schaefer, Craryville, NY

Data Error Reading Drive C

I have a problem with The Editor. I have two disk drives. However, in making a backup copy of the disk, I decided to follow the instructions on formatting a single-sided disk and to copy using one disk drive. In the process, I inadvertently hit the **Return** key with the source disk still in drive C. This occurred after I completed two-thirds of the transfer operation and before I inserted the target disk.

I tried to recover by starting over. Everything went well until, near the end, I got a **Data error writing drive C** error message. I **Retried** and got the same message. Then I hit **Ignore** and the transfer was completed. However, I have a feeling that I messed up something and that the program will not run correctly. My initial work with the program seems to indicate all is OK, but I have not yet begun to really exploit its capabilities.

Finally, I am mystified by the **Data error writing drive C** message I have also gotten at the very end of making a backup. On testing, the backup disk always seems OK. Can anyone help?

James D. Small, Alexandria, VA

[Hal—It is a good idea to write-protect

any disk you copy by pushing down the little tab in the lower righthand back side of your disk with your fingernail or pencil. If you have two disk drives, by all means enjoy the luxury of not having to constantly swap disks. To make a backup using two HP9114's, make sure the blank target disk is formatted in the same way as the source disk (single-sided or double-sided). Then do a **diskcopy c: d:** and the whole thing goes by itself.

I think there is a bug on the HP110 that causes the message **Data error writing drive C** to be displayed even though there is no error. If **Disc write verify** is on in PAM's **System Config** then this error message may incorrectly be displayed.]

HP150 And The HP9114

I have a question regarding 150/110 communications. I have the HP150 communication card that allows me to access the 150 disks through the 110. I understand that IBM PCs can be used to control the HP110 disk drive (HP9114). Can I configure the 150 to access the HP9114 too? Since my 150 does not have a double-sided drive, I would like to be able to access the 110's 9114 drive.

Albert A. Fiore, Westminster, CA
[Hal—I have not kept up with all the revisions of the HP150. However, I know the original HP150A that could only read single-sided disks can NOT access the HP9114's double-sided disk capacity.]

The HP82905 And Graphics

If you can sketch the outlines of a flow chart, can I assume you can print it if the printer is compatible? I currently have the old HP 82905 (Epson MX-80), and am seriously considering the HP2225. I've thought of the B version, but I'm thinking about attaching the printer to the RS232. But I haven't really worked out all the consequences yet.

I have two issues of *The Portable Paper* now, and I have read and re-read them several times. Each time I glean a bit more information from them. The value of sharing information about the Portable produces and promotes more and better usage. You're definitely doing a terrific job; I'm lucky I discovered *The Portable Paper*.

Bernard G. Wright, Goleta, CA
[Hal—The HP incarnation of the MX-80 (HP82905) was not designed to print graphics. From talking to The Portable Paper's Looking Glass columnist Ed Keefe, I believe it is technically possible but not easy.]

Many readers report they pick up a great deal from *The Portable Paper* by reading back issues a second and third time. This is especially true for novice users, many of whom say that most of The Paper is over their heads. We do try to pack as much good information in as understandable a form as we can. All back issues are still available.]

Support Needed For Engineers

I appreciate *The Portable Paper* and the software available through your organization. I am a teaching dean in an engineer-

ing college and travel worldwide as a consultant. Hence the need for the Portable Plus.

Software programs like Lotus 1-2-3 and Microsoft Word are very important in my work. But I also need engineering-oriented software; I must write my own programs for design and analysis calculations.

I am looking for word-processing software which uses subscripts, superscripts, and Greek characters. I have not found anything that works on the Portable Plus. I also want a graphics routine that plots algebraic equations or fits a least-square curve through a series of data.

Recently, I came across a Lotus 1-2-3-compatible program which does just what I want. I found it in "Personal Computing Tools Inc.," 101 Church St, Unit 12, Los Gatos, CA 95030. (408) 395-6600. I am interested in your comments regarding this program and the Portable Plus.

I realize the engineering market is much smaller than the business and personal computing markets, but I hope that organizations like yours will recognize our needs and give us some support.

J.B. Hadler, Webb Institute of Naval Architecture, Glen Cove, New York
[Hal—I wish I could help, but I can only point to partial solutions. I'm pretty sure that the Computing Tools program will NOT work on the Portable Plus due to the different way graphics are displayed on the Plus and the IBM PC. However, see the article in Vol. 2, No. 5 about HPrint for a solution, albeit a little awkward to your superscript, subscript, and Greek character problems. Also, see the SKETCH review in Vol. 2, No. 4 for possible solutions to curve fitting.]

Powering Portable Modems Abroad

I purchased a Migent pocket Modem and found it virtually unusable—until I discovered that a single 9v battery simply doesn't provide enough power in less-than-ideal operating environments. (Obviously, the AC adapter provided isn't a solution in the field—especially in a 220v field.)

The answer is a standard, six-cell battery pack using AA cells wired to a standard plug for the AC adapter input. The Migent unit then works fine, at both 300 and 1200 baud, in U.S. and Japanese ports, and with any number of extensions on the same phone line. The battery pack takes up little room and seems to run forever. (Also, the Migent has the added advantage of a built-in second jack for a telephone instrument.)

This modified power supply might solve similar problems for WorldPort 1200 and other portable modem users who REALLY want to be portable.

William C. Sexton, Long Island, New York

Another Formatter

Let me share a discovery with you. Long ago I purchased Hayden's Writer from HP (HP35154D); this was before anything else was available for my HP110. I found the

program to be riddled with bugs, causing one lockup after another. As you may know the program is divided into modules. However, the formatter, a file named **fmt.ovr** (about 21K) can be loaded and used with MemoMaker and Editor files. Simply rename the file **fmt.com**. It works fine and has capabilities not available in PrinterTalk and Format110. Of course, it requires embedded commands that make it awkward to use.

Robert Grigg, Davis, CA

Other PC Clones With HP-IL Cards

You asked several issues back for the names of IBM PC clones that work with the HP-IL card (HP82973A). Here are two: 1) Multitech AT-compatibles (900, 910) and 2) Microport's UNIX System V/AT. If DOS 2.11-formatted 5-1/4" disks are not used, then copy must be entered on the clone-side with HPLink running on the HP110.

C. M. Waite, Sollentuna

More Coverage Of Lotus 1A, Please

In one of the early issues of *The Portable Paper* you indicated that since there were several other publications dedicated to Lotus 1-2-3 you would not be covering it as heavily as you might otherwise.

Since the release of version 2.0 and Symphony, the coverage of version 1.0 by "Absolute Reference" and "Lotus" has been drastically reduced; therefore, I have let my subscriptions to those magazines lapse.

Since those of us with Portables cannot upgrade please reconsider and increase your coverage of version 1A.

The Portable Paper is extremely valuable to me and it brightens my day when I receive it in the mail. Keep up the good work.

Carl Noll, Riverside, CA

HP110 In A Manufacturing Environment

We Use the HP110 a great deal in a manufacturing environment. We find the configurable terminal to be especially convenient as a DNC link for machine tool program transfer. This allows us to create machine tool programs in our engineering department, with our HP Vectras doing the CAD, and then, with the HP-IL Link Card, we load the resultant code into an HP110. The code is then carried to the appropriate machine tool controller for upload. The advantages over hard-wire DNC schemes are obvious.

Christopher G. Black, Ithaca, NY

Staying Charged Abroad

I am having two problems with my otherwise wonderful Portable Plus. Both have to do with traveling abroad.

The first is the difficulty (sometimes impossibility) of recharging the battery in Europe. Even when using a standard (Franzsus or other make) conversion kit to lower the currency from 220 to 110, I don't get a recharge. This makes the Plus almost unusable, since one battery charge

just won't last more than a few days. In particular, I have this problem in Switzerland, France, and England. Have any ideas? Is there a device that will step down directly from 220 to the machine's voltage without having to use an intermediate converter?

The second problem is that I have not found a way to use the Portable Plus's communications facilities from Europe or Asia. I have the built-in Term program as well as the PC2622 (but not Reflection). At first I thought the problem was due to a difference in frequencies or tone pitch (I have had proprietary telephone equipment). But even if I dial the phone myself and connect the computer once I get the proper computer tone in the United States (on Easylink, for example), I am unable to establish and maintain communications. I have heard rumors of an acoustic coupler that automatically converts tones and frequencies, but have not been able to find one.

Donald R. Harkleroad, Atlanta, GA
[Hal—We'll see what our readers have to say. Two suggestions though. See The Portable Paper Vol. 2, No. 3, page 38: "Portable Self-Sufficiency" for a strategy of booking up a 12-amp, 12-volt battery to the Portable and peripherals. Also, according to the Touchbase Systems, which produces the WorldPort 2400 Baud modem, the Radio Shack acoustic coupler for the Model 100 is the best around. We sell this coupler, which is listed on the "Additional products" section adjacent to our order form.]

My Prayers Have Been Answered

When, as a hobbyist, I bought the Portable Plus a year ago, I fully realized that its major disadvantage was the lack of software support. However, the advantages of compactness, portability, and the advent of the super-twist screen, coupled with the realization that the Plus is a fully capable PC, seemed to far outweigh its "problems." My hope was that as the installed base for the Plus grew, so would the availability of reasonably priced, quality software.

My prayers have been answered! Not only is your magazine an invaluable

resource of information, but your software products (and hardware improvements by HP and others) are unlocking the full potential of the Plus. In particular, your latest issue was a revelation. ROM-based software, graphics, 1 and 2 Meg RAM drawers, even a Mouse! My friends no longer laugh at the Plus. The only objection they can now seem to come up with is that it is not a true IBM compatible. Who needs it, with the excellent support your company offers?

As far as I am concerned, *The Portable Paper* is as essential to me as my Edisc. Let the doubters eat TANDY!
Neil L. Henderson, Rocklin, CA

Another HP Fan

I work for an international advertising agency. I'm based in New York and am responsible for international clients in all of Central and South America (a total of 10 countries and 12 offices). I spend over 40 percent of my time traveling. I literally could not do the job without the Portable Plus, ThinkJet, and 9114B. I create presentations, analyze research, carry complete files of all my work since June, 1985, and run my office group by modem back in New York. Having over 1½ years of work at the touch of a button is a powerful resource indeed.

No other computer could do this for me. In many countries, power sources are extremely unreliable and I can't charge up. But with 20 hours on the Plus and an extra battery pack for the disk drive, I can work intensively for 3 to 5 days and never have a problem. In that time I am always able to find a place where I can charge up. My down time caused by flight delays, connections, and air time has dwindled to nothing. I can literally work anywhere except in the shower!

I am going to upgrade RAM on the mother board and get the new 1-Meg RAM board and the HP screen improvement. I think the prices are outrageous, but if I want to be more efficient I have no choice.

My wish list from HP is probably the same as others: IBM compatibility, reasonable prices, better support, hard disk card, and just some plain old interest in us.

Michael Cannon, New York City

We Need A Better Screen

We are generally pleased with our HP110s for office use and do not even find the 16-line screen a serious drawback. However, we would like to increase the screen contrast. We have tried one of the Axonix backlight modifications but were not satisfied. The short battery life, annoying power supply buzz, and illegibility of the screen with no backlight or bright incident light were simply too many minuses to accept.

A better solution for us would be a replacement screen of the blue and gold, "super-twisted" type now being used on many portables. We have been unable to find a source for such a modification. If you are aware of a possible supplier or have an alternative suggestion, we would much appreciate your advice.

Douglas DeHart, Portland, OR

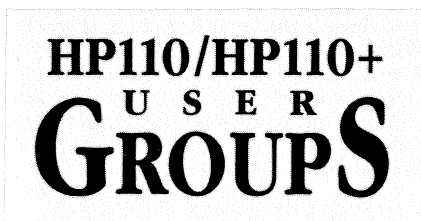
[Hal—I don't know any solution. According to HP Corvallis, when they found a supplier for the Portable Plus screen upgrade, they looked into doing so for the HP110. Apparently, no one makes high quality, sixteen-line screens that will work in the HP110.]

Looking For Report Generator

I own a Portable Plus with 512K in the memory drawer, and MS Word, Lotus 1-2-3, and MemoMaker/Time Manager in the software drawer. I also bought dBASE II for the Plus and copied it to the Edisc. So far I've not yet had the time to fully acquaint myself with dBASE II, especially the @say commands. So I'm only using "REPORT FORM" for my simple reports. I'm now looking for a report generator (nothing fancy) which can do more than the one in dBASE II and also will work faster with the @say commands. Of course, it should be on 3 1/2" disks. Any ideas from your side?

Rudolf J. Sommer, Nussbaumen, Switzerland

[Hal—With all the dBASE add-ons, there must be some kind of report generator that will work on the Portables. Does anyone know? We sell Condor 3, which has Report generation capabilities. dBase II files can be transferred into Condor 3 files.]

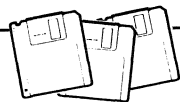


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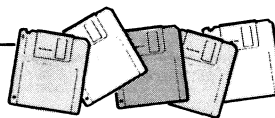
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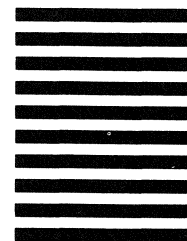
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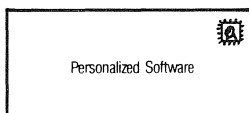
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The last section of the order form is for ordering software on ROM backup. See below.

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ADDITIONAL PRODUCTS

To order any of the following products (or others described in The Portable Paper but not listed on the opposite page), simply write the product name and price on one of the blank lines in the MISC section near the bottom of the order form.

Product	Retail Price	Subscriber Price
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HP9114 Empower with Battery Pack	225.00	199.00
Format110 (p. 31)	39.95	35.95
Mouse: Logitech (p.23)	119.00	99.95
Mouse: Microsoft (p. 23)	195.00	174.95
Mouse Software (p. 23)	70.00	60.00
Mouse Cable (p. 23)	30.00	20.00
Padded Case for Printer/Disk Drive	39.95	37.95
Padded Case for HP Portable/Plus	59.95	56.95
Pertmaster*	695.00	499.00
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PrinterTalk	49.95	44.95
Private File	33.95	34.95

*Specify whether HP110, Portable Plus, HP150, or IBM PC. Price of Pertmaster Demo applicable to cost of Pertmaster.

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RightWords dictionary extension for RightWriter (p. 15)	\$29.95	\$29.95
SideWinder (without utilities) (p. 35)	69.95	59.95
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Best of DOS Tools	(Two 64K ROMs) 128K	\$129.
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HPCalculator	64K	95.
HPDuette (p. 20)	64K	95.
lPrint	64K	95.
RightWriter (p. 15)	(Two 128K ROMs) 256K	179.
Shelp (p. 41)	32K	55.

IMPORTANT:

You must own (or order) the disk versions of any products you buy on ROM Backup. See inside front cover for complete information on ROM Backup Service.

	Size of ROM	Price
Shelp + SideWinder ^a	64K	95.
SideWinder ^a (p. 35)	32K	55.
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Turbo Pascal (p. 29)	64K	95.
Typing Whiz	64K	95.
Webster's Spelling Checker (Back cover)	(Two 128K ROMs) 256K	179.

^aThis version of SideWinder does not include any of the SideWinder utilities.

^bMini PrinterTalk is the abbreviated version included on the PrinterTalk disk. It is functionally equivalent to PrinterTalk for most applications.

Our Products and Services in Brief

See P. 20 **Carbon Copy Plus**

For Portable Plus and Portable Vectra: a highly rated program that does both data communications and remote control (for operating a remote computer from the keyboard of a host computer). The data communications functions are among the easiest to use on the market. "Dual chat" windows allow local and remote users to type at the same time without garbling messages. The remote control functions are password protected to prevent unauthorized use of remote computers. The entire program is memory-resident. Specify Portable Plus or Portable Vectra version.

CompuServe Starter Kit

Gets you started on the Electronic Information Service, CompuServe (which includes the HP Forum). Includes \$25 worth of free time, and CompuServe's monthly magazine, Online Today.

See P. 21 **Condor 3 and Condor, Jr.**

Database programs customized for the HP Portables. Enter data, sort, search, manage files, and print address labels with ease. **Condor, Jr.** runs on the HP110 and Portable Vectra. It allows limited report writing, and is highly memory-efficient. **Condor 3**, runs on the Plus, Portable Vectra, and HP150. It is a fully "relational" system, allowing you to combine data from two or more files. It includes advanced report generating capabilities, data transfer to and from Lotus 1-2-3 and other applications, and much more.

See P. 26 **Disk Conversion Service**

We will convert your data to and from single-sided, double-sided, high-density, 3 1/2 inch and 5 1/4 inch formats at a reasonable cost.

DOS Tools: Portable Utilities Disk, Vol 1

Well over 50 excellent public domain programs that enhance DOS, all tested on The Portables. Documentation has been rewritten for clarity and ease of use, and includes examples, index, and table of contents.

See P. 7 **Duette**

A software program that lets you transfer files back and forth at high speed between your HP portable computer and an IBM PC or compatible desktop computer—without the need for an HP-IL card. **Duette 2.0** is for the HP Portable Vectra. **HPDuette** is for the Portable Plus. Each version comes with proper serial cable.

See P. 31 **The Editor/The Formatter (separate packages)**

The Editor: Many features not in MemoMaker, including search/replace, editing 2 files at once, embedded printer codes, up to 255 columns per line. Also does word wrap, right justify. Easy to use. Uses less than 40K. Versions for HP110, Plus, HP150, Vectra, and IBM PC all on master disk.

The Formatter: Sophisticated text formatter for large reports, program documentation, etc. Multiline headers, footers, page numbers, table of contents, glossary capabilities, and more. Works with almost all printers. (Note: Manual is in draft form: no technical support available.)

See P. 19 **HP9114 Empowerer**

A hardware product that prevents the HP9114 disk drive from running out of juice in the middle of your work. Plug Empowerer into your HP9114 and a normal wall outlet, and you can run your HP9114 forever.

Flowcharting II+

This program creates professional-looking flowcharts and organizational charts using 26 flowchart symbols in 95 sizes. Wide variety of text fonts for creating labels both inside and outside the shapes. Easy to add and delete lines without disturbing the rest of the flowchart. "Shrink Screen" feature lets you view up to 14" x 11" chart on 25-line screen. (Runs on Portable Plus only.)

HPrint

Takes text (ASCII) files you've created with MemoMaker, The Editor, or other word processors and prints them on an HP printer. Comes with italic type font for ThinkJet. Also allows bold, underline, compressed, expanded, subscripts, superscripts, headers, footers, page numbering, double space, and much more—all of which you specify from a sim-

ple menu or by means of sensible control codes. HPrint also does mail merging, and it lets you create your own graphic characters (integral signs, Greek alpha, etc.).

LINK HP-IL Connector Software

A software program that lets you transfer data from any HP-IL device to any other HP-IL device. Now you can access your main computer (HP Portable, HP150, or IBM PC), its unlimited storage capability, and all its peripherals from your HP41, 71, 75, or series 80 hand-held!

See P. 23 **Logitech Mouse for the Portable Plus**

A 3-button mouse for the Portable Plus, bundled with our proprietary Portable Mouse Software and special connecting cable. Using the mouse instead of arrow keys to move the screen cursor makes using your Plus easier and more fun. The Logitech mouse was rated Editor's Choice by PC Magazine.

101 Macros for Lotus 1-2-3

Useful in themselves and also as learning tools for novices and experts alike, these macros include: recalculating ranges, double spacing spreadsheet prior to printout, hiding notes next to data cells, addressing form letters, and printing labels automatically. Customized for Lotus 1A and Lotus 2.01.

Mobile Recharger

Lets you recharge your Portable, ThinkJet, HP9114, HP hand-held computer, etc. from your car's cigarette lighter.

See P. 13 **The Norton Utilities**

—Customized For The Portables

Allow you to recover deleted Portable files and organize your electronic and external disks. Peter Norton has authorized Personalized Software to include an extra 3 1/2" disk (formerly available only on 5 1/4" disk) with each package sold. The disk includes The Norton Utilities, and instructions for running The Norton Utilities on the Portables and the HP150. Both version 4.0 and the Advanced Edition are now available.

1987 Portable Paper Subscriber's Disk

Includes (1) DISKPACK, a disk-packing utility whose commercial equivalent sells for \$50. (2) Time Manager's Calendar Utility. (3) HP Calculator program. (4) C Drive Copy Utility. (5) Game and Lotus templates. Clear instructions are included right on the disk.

1988 Portable Paper Subscriber's Disk

Contains: (1) New utilities for Time Manager, including an expanded Calendar program and an automatic mail-merge utility. (2) Some of the best public domain software and "shareware" for the HP Portable Vectra. (3) A password program to protect usage of the HP110 Portable. (4) TERM xmodem program for the Portable Plus. (5) Lotus templates. (6) Games. (7) New DOS tools. (8) A file to toggle HP and Alternate mode from DOS. (9) Lots more. Clear instructions are included right on the disk.

See P. 17 **Power Cube**

Powers and recharges up to four HP devices (HP Portable, ThinkJet, HP9114, HP hand-held, etc.) from a *single* wall outlet.

PrinterTalk and Format110:

MemoMaker Enhancers

PrinterTalk lets you change type styles in the middle of a document, change number of copies and lines per page, do automatic page numbering, and much more. **Format110** lets you format headers, footers and page numbers; chain or merge documents; compensate for "widow" and "orphan" lines and much more.

Private File

Protects your letters, documents, and data files by scrambling your file so only you can understand it.



3 Project Management Packages

All 3 work on the HP110, Plus, Vectra, HP150, and IBM PC. **Project 8-9-10**, a Lotus template, helps you manage small to medium projects. **Milestone** is also for small to medium projects. (On HP110, you need to scroll to see entire Milestone screen.) **Pertmaster** is for medium to large projects (specify which machine).

See center spread **2-Megabyte RAM card**

A giant leap in memory size for the Portable Plus. Simply remove your existing RAM drawer and replace it with this card. Works with any Portable Plus with 512K of built-in memory. We will accept your old RAM drawer and any extra memory as a trade-in towards purchase.

See center spread **RAM/ROM Card**

A megabyte of RAM plus four pairs of ROM slots. Add the RAM/ROM card to your Portable Plus and you have a megabyte of extra RAM in addition to space for Lotus, Reflection, Webster's Spelling Checker, MemoMaker/Time Manager, and SuperROM (5 products on one ROM chip). We will accept your old RAM or ROM drawer and any extra memory as a trade-in towards purchase.

See P. 15 **RightWriter**

Flags errors in grammar, style, usage, and punctuation, inserting comments directly into your document. Also produces overall critique (strength of delivery, use of jargon, grade level). Works with most word processors. Also available: **RightWords** dictionary extension utility: it has 7 auxiliary dictionaries (business, computers, engineering, etc.), and also lets you add words of your own to RightWriter's built-in dictionary.

See P. 2 **Software on ROM**

Many of our best-selling programs are available on ROM chips via our ROM Backup service. (Portable Plus only.) Saves valuable electronic disk space, minimizes need for disk drive. **Custom ROMs** also available.

See P. 41 **Shelp**

From within almost any program, Shelp gives you immediate access to a notepad and calculator and lets you define up to 26 keyboard macros—that is, assign up to 31 characters to a single keystroke. Written exclusively for the Portable Plus.

See P. 35 **SideWinder**

This program allows you to print your spreadsheets (or any other text file) sideways on your ThinkJet. This means you can print your 60 column by 53 row spreadsheet from your Portable as one long print-out without cutting and pasting.

See P. 22 **Sketch**

A graphics program for the HP Portables. Lets you draw free-form using cursor keys. Also draw lines, boxes, circles by pressing a single key. Five character sets can be displayed normally, sideways, or even upside-down. Entire screen can be printed on ThinkJet at virtually any enlargement. Screens can be saved for future use. Screens can also be imported into Sketch from Lotus and other programs. Only uses 44K of memory.

Soft Padded Cases

Roomy, rugged, high-quality, highly padded cases to protect your ThinkJet, HP9114, and HP Portable when traveling.

See P. 20 **Statistix**

A comprehensive statistical package that's easy to learn and use. Runs on the HP110, Portable Plus, HP150, and IBM PC compatibles. Data can be entered from keyboard or imported from spreadsheet or database files. Includes multiple regression, most standard parametric and non-parametric tests, p-values, plots, histograms, and much, much more.

Tiger Fox

A great video game of changing mazes and double pursuit. First video game designed for the Portables.

Time Manager

The highly acclaimed Portable Plus ROM-based **Time Manager** program in a 3 1/2" disk version for the HP110 Portable. Does not run on Portable Plus. (Available to Portable Paper subscribers only.)

See P. 11 **T/Master and T/Maker**

T/Master is a fully integrated word processor, speller, relational database manager, spreadsheet, file manager, and communications package. Also includes graph making. It runs on the Portable Plus and Portable Vectra without modification, and on the HP150 with a PC emulator. **T/Maker** is an earlier version of T/Master; it runs on the HP110 Portable with an external disk drive. T/Maker does not include the communications module. Both programs are more integrated than any other package on the market. Our reviewer says, "...there is no other application I know of that matches the power, thoroughness, and simple elegance of T/Master."

See P. 29 **Borland Turbo Pascal**
—Customized For The Portables

Turbo Pascal, the HP Portable programming language of choice, outstrips others in price, performance, compatibility, memory consumption, and programmer environment. The WordStar-type editor alone is worth the price. Borland has authorized Personalized Software to include an extra disk customizing the Turbo editor to the HP110 and Portable Plus's editing keys. The **Turbo Pascal Starter Kit** includes **Turbo Pascal**, **Turbo Pascal Tutor 2.0**, and **Portable Pascal Programs** (a double-sided disk with more than 50 program examples for the Portables). Also available: **Turbo Toolbox** (includes Pascal sort and search routines that create database/file-management system).

Typing Whiz

Better than almost any typing tutor program on the market—designed specifically for The Portables and the HP150. Immediate numeric and graphic feedback of your progress.

Inside front cover **Used HP Portable Equipment**

The Portable Equipment Exchange, a division of Personalized Software, buys and sells used HP Portables, Portable Pluses, HP9114s, HP ROMs, and RAM drawers for the Portable Plus. Because of HP quality, used HP products are a great buy. 30-day return policy on all used equipment we sell.

See P. 1 **Volume Discounts**

Corporate buyers, users groups, and HP dealers: Order products and subscriptions from us in quantity and save.

Back cover **Webster's Spelling Checker**

Rated Editor's Choice by PC Magazine, this spelling checker packs a hefty 110,000-word dictionary into just 207K of disk memory. Webster's shows you incorrect spellings in context and suggests corrections, also lets you preview questionable words before you edit. Exceptionally easy to learn and use. Customized for the Portable Plus and HP150.

WordPerfect 4.2

Disk based Portable Plus, Portable Vectra, and HP150 version of the best-selling word processor. Includes spelling checker and thesaurus.

See P. 41 **The Word Plus**

An excellent spelling checker with a choice of two dictionaries—45,000 words and 35,000 words—plus the ability to input additional words and abbreviations of your own. Also does word counts. Customized to the HP Portables.

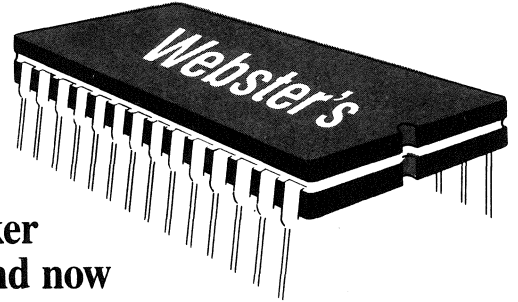
WordStar Professional 4.0

With over 125 new features, the latest version of this highly popular word processor now includes an undo feature, on-screen display of boldface and underline, multiple-line headers and footers, keyboard macros, line and box drawing, improved spelling correction, and overall higher speed. Works with Portable Plus, Portable Vectra, and HP150. (Note: Built-in 220,000 word thesaurus does not run on the Portable Plus.)

See P. 9 **WorldPort Portable Modems**

The **WorldPort 2400** is a battery-powered, highly compact (4" x 2" x 1"), lightweight (6.5 oz.), full-featured external modem that transmits data at 300, 1200, and 2400 baud. Faster than HP's internal modems, the WorldPort 2400 is fully compatible with the industry-standard Hays AT Command Set, and with both the CCITT and Bell communications standards. The **WorldPort 1200** modem transmits at 300 and 1200 baud.

Portable Plus users: At last! A great spelling checker available on ROM!



Webster's (web'stərs) n. The spelling checker rated Editor's Choice by *PC Magazine* (Dec. 24, 1985), and now available from Personalized Software for the Portable Plus and HP150.

—Customized on 3½" disk by special arrangement with Simon & Shuster, Inc.

PC Magazine rated eight leading spelling checkers for ease of use, flexibility, speed, overall program size, thoroughness, and accuracy. WEBSTER'S NEW WORLD SPELLING CHECKER came out on top—for a number of good reasons:

First, there's sheer size. WEBSTER'S contains over 110,000 words in its dictionary—five times the number in Hayden's Speller, 2½ times as many as in The Word Plus—yet WEBSTER'S dictionary and main program take up only 207K of disk memory.

Second, WEBSTER'S isn't just easy to use—it's positively a *pleasure*. It reads your files at high speed, then displays every questionable word *in context*, highlighted. At the same time, in a "window" off to the side, it gives you a list of possible correct spellings. A simple menu gives you the following options:

- Accept the word as is
- Replace the word with one of the suggested spellings
- Enter the correct spelling manually

RECOMMENDED FOR:		
HP110 Portable	Portable Vectra	●
Portable Plus	HP150	●
IBM PC and compatibles		●
Available on ROM Backup for the Portable Plus		

- Add the word to an auxiliary dictionary of frequently used words
- Replace all other occurrences of the word
- Look up the spelling of any other word at any time

WEBSTER'S also lets you mark in your text any spelling corrections that change length of a word; this lets you quickly locate portions of text that may need reformatting.

WEBSTER'S will automatically locate double repetitions (like "and and"). It can correct transpositions ("itme" becomes "item"), missing apostrophes ("dont" becomes "don't"), and *typos* of all kinds ("spelling" becomes "spelling," etc.).

If you're not sure of a word, you can even *spell it the way sounds*, and chances are WEBSTER'S will supply the correct spelling. ("Fenomenon" gets corrected to "phenomenon," for example.)

In addition, WEBSTER'S will let you preview a list of all questionable words *before* displaying them in context; this saves you time because it lets you eliminate words from the questionable list (or add them to your auxiliary dictionary) before you begin the editing pass.

John Dvorak, writing in the *San Francisco Examiner*, called WEBSTER'S "the

best spell-checker we've seen in a long spell." Henry Kisor of the *Chicago Sun Times* has called WEBSTER'S "the best proofreading software on the market." We agree with them both—and we think you will too. Order your copy at no risk today.

Webster's Spelling Checker on 3½" disk customized for the Portable Plus and HP150 \$79.95 \$69.95 for Portable Paper subscribers.

Webster's is available on ROM backup for an additional \$179. See ROM ad in this issue for important details.



WEBSTER'S SPELLING CHECKER works with any file produced by the Editor, WordStar, and MemoMaker. It also works with ASCII files produced by MS Word and Word Perfect.

Our version of WEBSTER'S includes a customized 3.5" disk and simple instructions for running the program on the Portable Plus and HP150. A special utility allowing WEBSTER'S to run on the HP150 is included on the disk.

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HP Portable users:
Sorry, WEBSTER'S won't run on the 110;
your best bet is THE WORD PLUS, another
top-rated spelling checker available from
Personalized Software. (See ad in this issue.)

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